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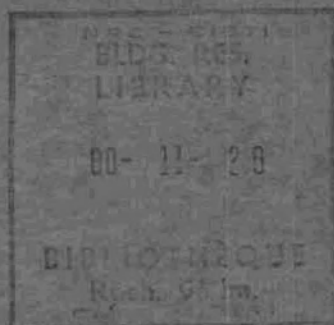
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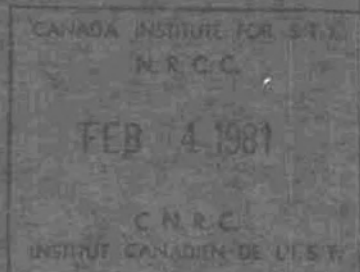
SOLAR HEAT GAINS THROUGH WINDOWS IN CANADA

by S.A. Barakat



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ABSTRACT

Net heat gains through windows, defined as the difference between the solar energy admitted through the window and its conduction heat loss, were calculated and presented in Tables 1 to 39. Calculations were performed in detail on an hourly basis using measured weather parameters for 1970-71 for 13 Canadian locations and three window types. The monthly total values of the solar radiation incident on the window, the solar gain through, the conduction heat loss and the net heat gain, as well as the total of these values over the heating season (October 1 to April 30), are all given in Tables 1 to 39 in units of MJ/m^2 of window area. Net heat gain values can be used during the early stages of a building design to assess the potential benefits of passive solar aspects of the building. It should be noted, however, that values listed in Tables 1 to 39 are the calculated net gains and not the actual useful gains. These values do not take into account factors such as shading, room net reflectance, building thermal storage capabilities or space overheating. A basis for a method is outlined in this report which uses these calculated net gain values to calculate useful passive solar contribution taking into account all the parameters involved, that is building load, glazing area, storage mass and space comfort.

LES APPORTS DE LA CHALEUR SOLAIRE PAR LES FENÊTRES AU CANADA par S.A. Barakat

RÉSUMÉ

Les apports nets de chaleur par les fenêtres, définis comme la différence entre l'énergie solaire que laisse passer une fenêtre et la perte par conduction de chaleur, ont été calculés et présentés aux tableaux 1 à 39. Les calculs détaillés ont été effectués sur une base horaire en utilisant les paramètres des températures mesurées en 1970-71 pour treize localités canadiennes et trois types de fenêtre. Les valeurs totales mensuelles du rayonnement solaire incident sur la fenêtre, l'apport solaire qu'elle laisse passer, la perte de chaleur par conduction et l'apport net, de même que le total de ces valeurs pour une saison de chauffage (du 1^{er} octobre au 30 avril), sont tous donnés aux tableaux 1 à 39 en unités MJ/m^2 de surface de fenêtre. La valeur des apports nets de chaleur peut être utilisée au tout début de la conception du bâtiment afin d'évaluer les avantages possibles du chauffage solaire passif du bâtiment. Toutefois, il est à remarquer que les valeurs figurant aux tableaux 1 à 39 sont les apports nets calculés et non pas les apports réellement utiles. Ces valeurs ne tiennent pas compte des facteurs comme les ombres, la réflexion nette de la pièce, les capacités d'emmagasiner thermique du bâtiment ou du surchauffage des locaux. La base pour une méthode est décrite dans ce rapport qui utilise ces valeurs d'apports nets calculées pour calculer la contribution du chauffage solaire passif utile qui tient compte de tous les paramètres impliqués, c'est-à-dire la charge du bâtiment, la surface de vitrage, la masse de stockage et le confort dans le local.

SOLAR HEAT GAINS THROUGH WINDOWS IN CANADA

by

S.A. Barakat

INTRODUCTION

When designing a building in which a major part of its heating demand is to be supplied by solar gains, i.e., a passive solar building, detailed data on solar heat gains through windows are needed. These gains influence the choice of building orientation, amount and type of glass, shading, building mass, as well as any requirement for a mechanical ventilation or air conditioning system to handle overheating of the space.

In this report, a method to calculate the net heat gain (defined as the difference between the solar gain and the conduction loss) through any type of glazing is described. This method is based on an hourly calculation of the incident solar radiation on the glazing surface, the glazing solar characteristics (transmission, absorption and reflection) and the heat loss through the glazing by conduction, convection and long-wave radiation.

The net heat gain was calculated for single, double and triple glazed windows for 13 locations across Canada: Vancouver, Edmonton, Winnipeg, Ottawa, Fredericton, Toronto, Montreal, Halifax, St. John's, Summerland, Suffield, Swift Current and Charlottetown. The calculated data can be used in a simplified method, based on a utilization factor concept, to calculate the solar contribution to building heating requirements. The utilization factor is a function of building load, glazed area, thermal storage mass and acceptable temperature swings in the living space. Although the method is still under development, an example demonstrating the utilization factor concept is presented.

This report also includes discussion of the benefit of using night insulating shutters relative to increasing the number of glazings.

FENESTRATION NET HEAT GAIN

The procedures for calculating solar and total heat transfer through fenestration areas are presented in detail, particularly for single and double glazed windows, in the ASHRAE Handbook of Fundamentals [1]. The relevant equations are summarized below and expanded to handle the heat transfer through multiple-glazed windows (N panes of glass).

Of the many factors affecting heat flow through fenestration areas, the most significant are:

1. solar radiation intensity incident on the glazing surface, I , and incident angle, θ ;
2. outdoor-indoor temperature difference;
3. velocity and direction of air flow across exterior and interior fenestration surfaces; and
4. glazing properties and design.

At any instant, the net heat gain through a unit area of sunlit window is defined as being equal to the sum of the radiation transmitted through the window, the inward flow of heat from the solar radiation absorbed by the glazing material, and the heat flow (heat loss) due to the outdoor-indoor temperature difference.

For a single-glazed window (Fig. 1) this is given, at any time, by

$$Q = \tau I + F_i (\alpha I) - U(t_i - t_o) \quad (1)$$

where

Q = net heat gain (net heat flow)

I = solar radiation intensity incident on the window surface

τ = over-all transmission of window to solar radiation

F_i = inward-flowing fraction of the absorbed radiation

α = absorption of the glazing material

U = over-all heat transfer coefficient of the window

t_i, t_o = indoor and outdoor temperature, respectively.

For a multiple-glazed window (N panes) such as shown in Fig. 2, the net heat gain can be calculated as

$$Q = \tau I + \sum_{n=1}^N F_{i,n} \alpha_n I - U(t_i - t_o) \quad (2)$$

where α_n is the absorption coefficient of the n th pane and $F_{i,n}$ is the inward-flowing fraction of the absorbed radiation by the n th plane. It can be calculated as

$$F_{i,n} = U \left[\frac{1}{h_o} + \frac{R_{g,n}}{2} + \sum_{\substack{m=0 \\ m \neq N-n}}^{N-n} (R_{g,n+m+1} + R_{s,n+m}) \right] \quad (3)$$

where

$R_{g,n}$ = thermal resistance of the nth pane of glazing

$R_{s,n}$ = thermal resistance of the nth air space, the first air space being adjacent to the first pane (see Fig. 2)

h_o = outside heat transfer film coefficient.

Equations (1) through (3) apply to both components of the solar radiation, the beam component at any incident angle and the diffuse component. Therefore, whenever $\tau \cdot I$ and $\alpha \cdot I$ appear in the equation, it should be treated as $(\tau_B(\theta) \cdot I_B + \tau_D \cdot I_D)$ and $(\alpha_B(\theta) \cdot I_B + \alpha_D \cdot I_D)$, respectively.

From the equivalent circuit for the window thermal resistances (Fig. 2) and a heat balance at the n-1 pane, the individual nth pane temperature $t_{g,n}$ can be calculated as

$$t_{g,n} = t_{g,n-1} + (q - \sum_{m=1}^{n-1} \alpha_m I) \left(\frac{R_{g,n}}{2} + R_{s,n-1} + \frac{R_{g,n-1}}{2} \right) \quad (4)$$

where q is the heat flow through the window by conduction, convection and long-wave radiation, i.e.,

$$q = \sum_{n=1}^N F_{i,n} \alpha_n I - U(t_i - t_o)$$

or $q = Q - \tau \cdot I$

Equation (4) does not apply for $n = 1$. In this case

$$t_{g,1} = t_i + q \left(\frac{1}{h_i} + \frac{R_{g,1}}{2} \right) \quad (5)$$

The following three sections describe the method by which the main factors (incident solar radiation, glazing characteristics and over-all heat transfer coefficient) are calculated in this study.

INCIDENT SOLAR RADIATION

Total radiation incident on a horizontal surface in a number of locations across Canada (54 stations) is measured and recorded by the Atmospheric Environment Service; these records are available on magnetic tape. There are, however, no comparable observed data for the direct and diffuse solar radiation (only for a few stations) or for the radiation incident on inclined surfaces.

A number of methods to split the total radiation on the horizontal surface into its direct and diffuse components, and then to calculate the radiation incident on a surface of any orientation and tilt angles have been examined, and the method of Hay [2,3] was selected to be used throughout this study. His model was based on measured radiation data for a number of Canadian locations. It incorporates the multiple reflection of short-wave radiation between the earth's surface and the atmosphere and also considers the anisotropic distribution of the diffuse solar radiation component.

The solar radiation data measured on the horizontal for the following 13 Canadian cities was used in this study:

Vancouver, B.C., Edmonton, Alta., Winnipeg, Man.,
Ottawa, Ont., Fredericton, N.B., Toronto, Ont.,
Montreal, Quebec, Halifax, N.S., St. John's, Nfld.,
Summerland, B.C., Suffield, Alta.,
Swift Current, Sask., and Charlottetown, P.E.I.

This solar radiation data, as well as other weather parameters such as outdoor dry bulb temperature, cloud amount and wind speed, are available on magnetic tapes (NRC weather tapes). Each weather tape contains hourly information for 3 years: 1970, 1971 and 1972 except for Charlottetown, where they are for 1972, 1973 and 1974. A check was made to compare the weather in each season (solar radiation and heating degree-days) with the long-term average values. Long-term average radiation values were calculated by Hay [4] for a number of the above locations, and the average degree days were calculated for the same locations from the long-term average values of the outdoor temperature published by Atmospheric Environment Service.

The choice of the heating season for which the results were presented was based on a comparison of the sums E of the absolute values of the difference δQ between the monthly net gain for a double-glazed window for the particular season and that for the long-term average conditions, that is

$$E = \sum |\delta Q| \text{ over the heating season}$$

where

$$\delta Q = \tau \cdot \delta I - U \cdot \delta (DD) \cdot 24$$

δI is the difference between the monthly total radiation and the long-term value for the same month, and

$\delta(DD)$ is the difference between the monthly heating degree days and the long-term value for the same month.

It was found that, for most of the locations considered, the 1970/71 heating season was closer to the average (lower E value). Although the solar gain calculations were performed for all the three available calendar years, data are presented here only for the 1970/71 season (1972/73 season for Charlottetown).

ABSORPTION AND TRANSMISSION OF WINDOW TO SOLAR RADIATION

The absorptivity and transmissivity of a window depend on the type and thickness of the glass, the number of glass panes, the incident angle of the solar radiation and the degree of polarization of the incident beam. Mitalas and Arseneault [5] developed a computer program to calculate the absorption and transmission of thermal radiation by single and double-glazed windows.

As the multiple ray reflections procedure becomes very tedious when more than two panes are considered, a number of authors have developed other procedures to calculate transmission and absorption of multiple glazing systems. Edwards [6] developed a method to calculate the solar absorption by each element in an assembly of absorber and glass covers. For the present study, this method was used with the absorber replaced by a room that is considered to have an absorptance value of unity. The over-all transmission and reflectance of the glazing and the absorptance of each pane were calculated for both components of the polarized radiation at any angle of incidence. The corresponding factors for diffuse radiation are then calculated through the equation

$$F_{\text{diffuse}} = \int_0^{\pi/2} F(\theta) \sin 2\theta \, d\theta$$

where θ is the incident angle of radiation [5].

WINDOW OVER-ALL HEAT TRANSFER COEFFICIENT

The over-all heat transfer coefficient of a multiple-glazed window, U , can be calculated as

$$\frac{1}{U} = \frac{1}{h_o} + \sum_{n=1}^{N-1} (R_{s,n}) + \sum_{n=1}^N (R_{g,n}) + \frac{1}{h_i} \quad (6)$$

where

$R_{s,n}$ = resistance of the nth air space = $1/h_{s,n}$

$R_{g,n}$ = resistance of the nth pane of glazing = L_n / k_n

h_i = inside film heat transfer coefficient

$h_{s,n}$ = heat transfer coefficient for the nth air space

L_n = thickness of the nth pane

k_n = thermal conductivity of the nth pane material.

Since all h_o , $R_{s,n}$ and h_i vary with time (with the variation of h_o being the largest as it is a direct function of wind speed), U varies with time and is therefore calculated hourly.

This approach to calculate the heat loss through the window by conduction and convection may, in some instances, fail to give the correct magnitude and direction of the heat flow. This is due to the changes in temperature within the boundary layer on the outside surface of the window as influenced by opaque surfaces surrounding the window. For example, the opaque surface is warmed up by the solar radiation falling on it. As the warm boundary layer rises it comes in contact with the window surface and causes a reduction of the heat flow and, in the extreme case, a reversal of the direction of the heat flow may occur. This mechanism may be reversed at night as a result of the opaque surface above the window losing heat by long-wave radiation causing a down-flow of the cool boundary layer over the window surfaces. Since this mechanism has not been fully studied or formulated, the over-all heat transfer coefficient approach is used in this study. It is expected that this may limit the accuracy of the evaluation of the amount of heat loss through the window.

The outside film heat transfer coefficient is calculated by using the equation

$$h_o = 11.34 + 3.38 V \text{ W/m}^2 \text{ K} \quad (7)$$

where V is the wind speed in metres per second. The value of h_o calculated above includes both convection and long-wave radiation heat transfer components. Equation (7) represents a first order polynomial fit to the data given in ASHRAE Handbook [1].

The indoor surface air film coefficient h_i is also calculated based on a first order polynomial fit and linear interpolation using the values given in the same reference for still air and five glazing tilt angles.

The equation for a vertical surface is given as

$$h_i = 0.54 + 1.03 \epsilon \quad (8)$$

where ϵ is the surface emittance.

The thermal resistance of the air space is calculated using the values given in Ref. [7]. Equations are formulated to calculate the resistance of a plane air space of thickness, ℓ , tilt angle, s , and sandwiched between two surfaces whose temperatures are t_1 and t_2 and whose total emissivities are ϵ_1 and ϵ_2 respectively. The equations are based on least square polynomial fitting [8] and linear interpolation between the relations presented in the reference. Surface temperatures are calculated from Eqs. (4) and (5).

Since $t_{g,n}$ is a function of the heat flow which is in turn dependent on U , the calculation of $R_{s,n}$ and U has to be performed through iteration. An example for such procedure is given for a double-glazed window in the ASHRAE Handbook [1].

CALCULATION PROCEDURE

A computer program was written to perform the hourly heat gain calculations and to display the following monthly and seasonal values:

1. Degree days (18°C base)
2. Solar radiation incident on the plane of the window
3. Solar heat gain through the windows
4. Conduction heat loss
5. Net solar heat gain.

Initially, for each type of window, the window transmission and absorption for diffuse solar radiation are calculated. For each hour of the year, the program then calculates:

1. The direct and diffuse components of the solar radiation incident on the window also the incident angle,
2. the transmittance and absorptance of the glazing to the direct solar radiation at the present incident angle,
3. the over-all heat transfer coefficient and the glazing temperatures using an iterative process, and
4. the two components of the net heat flow, that is, the solar heat gain and the conduction heat loss; these are then summed up to give the net solar heat gain through the window.

Values calculated in 4 are then summed over each month and also over the heating season which is defined to extend from 1 October to 30 April.

The calculations were performed for 13 Canadian cities (already listed) and for three window types: single-, double-* and triple-glazed.* The results are presented in Tables 1 to 39 for vertical windows facing eight orientations, north, northeast, east, southeast, south, southwest, west and northwest.

The following are the limitations to the listed net heat gain values:

1. The calculation takes no account for the shading of the window by any external object, e.g., building, trees, or by any part of the building or the window itself (framing, overhang).
2. The calculation assumes that the room behind the window absorbs all the solar radiation transmitted through the glazing. That is, no account is made for any short-wave radiation reflected back through the glazed area. This could be significant in some cases depending on the shape of the room and the solar reflectance of its surfaces.
3. The calculation of the net heat gain is not linked to the room dynamic behaviour; that is, there is no account made for any storage effects or heat dumping because of overheating. The indoor temperature is assumed to be always constant at 21°C (70°F).
4. No allowance is made for the effect of the change in the boundary layer temperature, due to the presence of the surrounding opaque surfaces, on the heat loss by conduction and convection.

MONTHLY AND SEASONAL SOLAR GAINS

Net solar heat gains over the heating season (1 October to 30 April) are plotted against the heating season degree days in Figures 3 to 5 for single-, double- and triple-glazed windows.

In general, over the heating season single-glazed windows are found to be net losers of energy on all orientations, double-glazed are net energy gainers for south, SW and SE orientations and triple-glazed extends the positive gains to the east and west orientations. As an example of the monthly variations of the net gain during the heating season, Figures 6 and 7 give the monthly total net solar gain for the three window types in Winnipeg for south and west orientations. The trends shown in the two figures are typical for all the Canadian locations considered. In summary, for a south orientation, a single-glazed window has a net energy gain only in early fall or late spring, a double-glazed window is a net gainer except for December and January for most locations, and a triple-glazed window has a net energy gain for each month of the heating season. Windows facing other orientations have qualitatively the

* 1.27 cm air spaces

same monthly variations with a decreasing magnitude of the net gain as they deviate away from south. For example, Figure 5 shows, for a west-oriented window, only a net benefit of such a window if triple-glazed even though the benefit is in spring and fall when the heating requirement of the building is reduced.

DAILY PROFILES

Examples of the daily profiles of the net solar heat gain for a sunny day and a cloudy day for fall, winter and spring are given in Figures 8, 9 and 10 respectively. The figures are for a south-facing double-glazed window in Winnipeg. Under such conditions on a sunny day a maximum net gain of about 600 W/m^2 may be obtained. The total daily net gain, on a sunny day (24 hours) is found to be in the order of 14.4 MJ/m^2 in spring and fall and 7.2 MJ/m^2 in winter. On a cloudy day, the same window loses about 3.6 MJ/m^2 in spring and fall and about 7.2 MJ/m^2 in winter. These differences are due to lower outdoor temperature in winter combined with fewer sunshine hours during the day.

USEFUL SOLAR CONTRIBUTION

In general, the net solar gain values just presented do not represent a net useful value which directly reduces the heating demand of a building. The useful solar contribution could be significantly lower depending on a number of parameters such as building load, thermal storage mass (a function of type of construction and type of passive system), glazed area and allowable indoor temperature swings. A utilization factor, defined as the fraction of the net heat gains (as calculated in this report) which directly contributes to the heating demand, can be calculated for each combination of these parameters. The utilization factor can be obtained experimentally or from a detailed computer simulation of a building.

To demonstrate the concept of the utilization factor, the net gain values are compared in Fig. 11 with the values given in Ref. [9] which were calculated through a computer simulation of a well insulated conventional house. They represent the net decrease in the house heating requirement due to a known increase in the glazed area, at a specific orientation, and reported per unit of incremental glazing area. Figure 16 gives the utilization factor (based on values in Ref. [9] and the values presented in this report for a south-facing double-glazed window and for different Canadian locations, i.e., degree days. Since the building simulated in Ref. [9] had low thermal storage, the utilization factor ranged only between 0.25 and 0.35 with the higher values occurring with the higher load because of more solar energy utilization during daytime hours.

It should be noted that the utilization factor values shown are for a specific combination of load, mass and temperature swing (21 to 27°C) and more important, it is calculated only for the incremental window area (in this case between 41.1 and 50 m^2). The utilization factor may differ significantly for a building with a different combination of these

parameters. Figure 12 illustrates the expected variation of the utilization factor with the different parameters. For a particular building (load) and a very small glazing area, all the solar gain will be useful as no overheating of the space is expected to occur. Increasing the glazed area beyond a certain limit will cause space overheating and part of the solar gain has to be vented to the outdoors. This will show as a decrease in the utilization factor. The utilization factor for the incremental area will reach zero at a point where all the solar gain from this area has to be vented to maintain the space at the prescribed comfort temperature level. Increasing the thermal storage capacity of the building will increase the utilization factor, as a fraction of the excess heat goes to storage to be released at a time of higher heating load (overnight).

Generating such a family of curves is part of the ongoing research project. Such relations will enable the designer to make decisions regarding building mass and area of glazing as well as evaluating the trade-off between passive solar features and other energy conservation measures to arrive at the most economical combination.

USE OF NIGHT INSULATING SHUTTERS

To increase the net heat gain through the glazed area, insulating shutters are used overnight to decrease the conduction heat losses. For example, referring to Fig. 9, a night shutter having a thermal resistance of $1.06 \text{ m}^2 \cdot \text{deg C/W}$ (R6) would reduce the conductance loss from 120 W/m^2 to 30 W/m^2 for 14 h which results in an increase in the net gain of about 4.7 MJ/m^2 over that day. Over longer periods this would result in a net heat gain through the same window that produces a net heat loss without such night insulation.

An assessment of the benefit of insulating shutters on single- and double-glazed windows can be made using Figures 13 to 16. In each Figure, the net solar heat gain through a south-facing window over the heating season is plotted against the R value of the insulating shutter. The shutter is always considered to be on between sunset and sunrise. Values for the net gain through the three glazing types without any night shutters are also shown for comparison. Plots are made for Vancouver, Winnipeg, Ottawa and Fredericton, to represent different regions of the Canadian climate.

The plots show that a south single-glazed window with a shutter can surpass a double-glazed without any shutter in performance (net gain) with the addition of a night shutter of a resistance (RSI on Figures) of about 0.4 to $0.6 \text{ m}^2 \cdot \text{deg C/W}$ (slightly lower for mild climate regions). A double-glazed window, however, requires a shutter with a resistance of $0.25 \text{ m}^2 \cdot \text{deg C/W}$ (RS2) to perform equally with a triple-glazed one without any shutter.

This relative benefit of movable insulation versus additional glazing depends to a large extent on the window orientation and the local climate; these variations are demonstrated in Figure 17 where RSI

and RS2 are plotted against orientation for the four locations mentioned. It is shown that this equivalent shutter resistance, particularly with single-glazed windows (RS1), vary significantly with orientation and climate; this is mainly due to higher conduction losses (e.g., Winnipeg vs. Vancouver) and lower solar gains as the window orientation deviates away from south.

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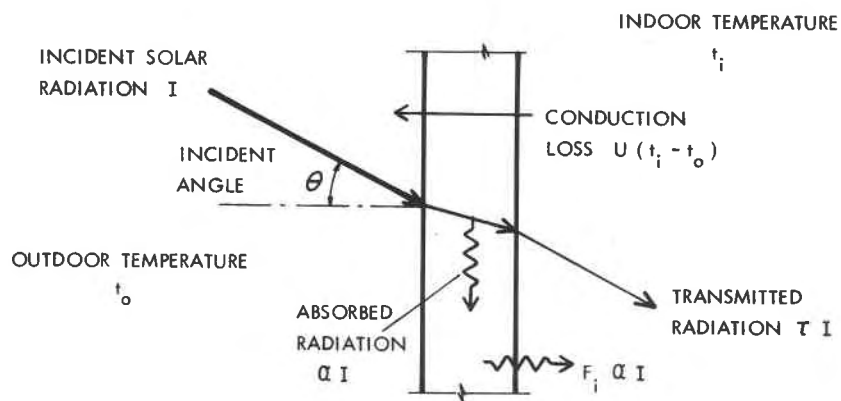


FIGURE 1
HEAT BALANCE FOR SINGLE-GLAZED WINDOW

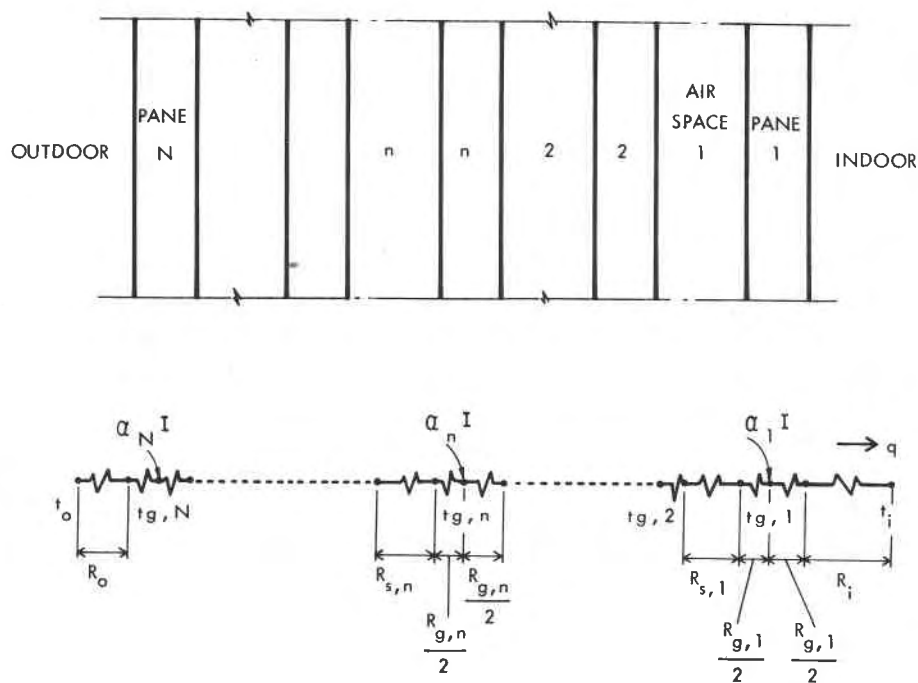


FIGURE 2
WINDOW THERMAL RESISTANCE

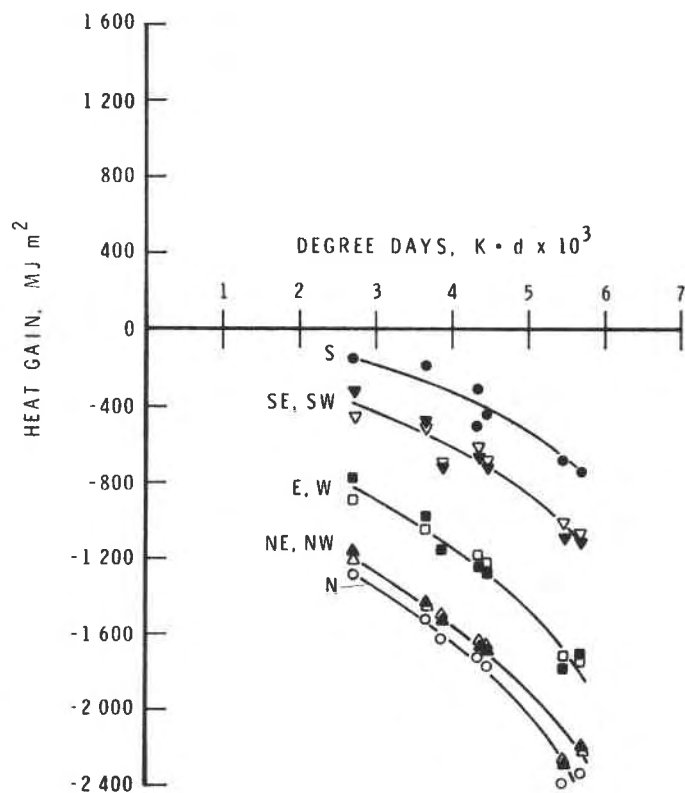


FIGURE 3
NET HEAT GAIN OVER THE HEATING SEASON,
SINGLE-GLAZING

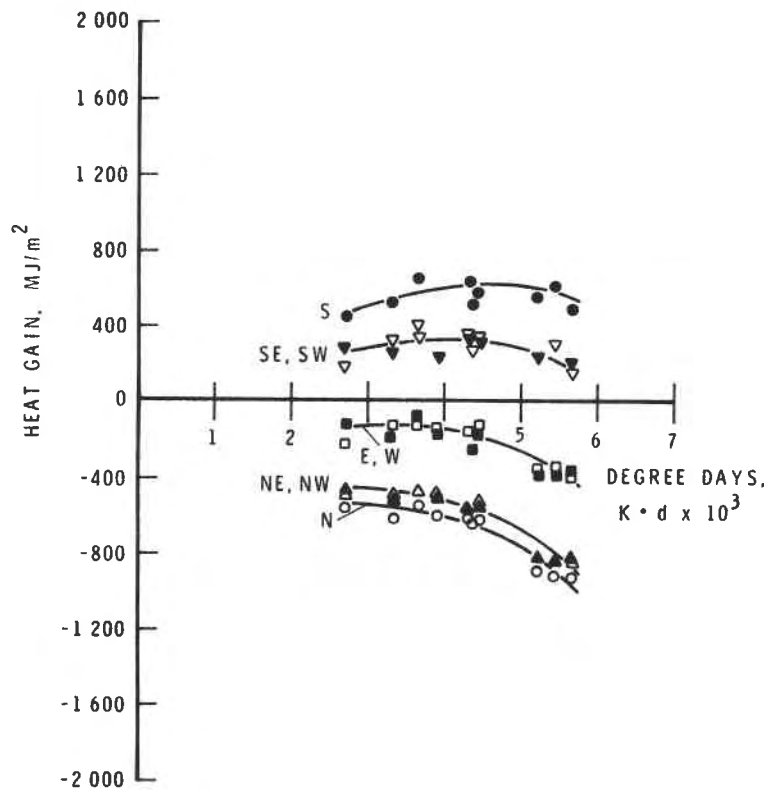


FIGURE 4
NET HEAT GAIN OVER HEATING SEASON,
DOUBLE-GLAZING

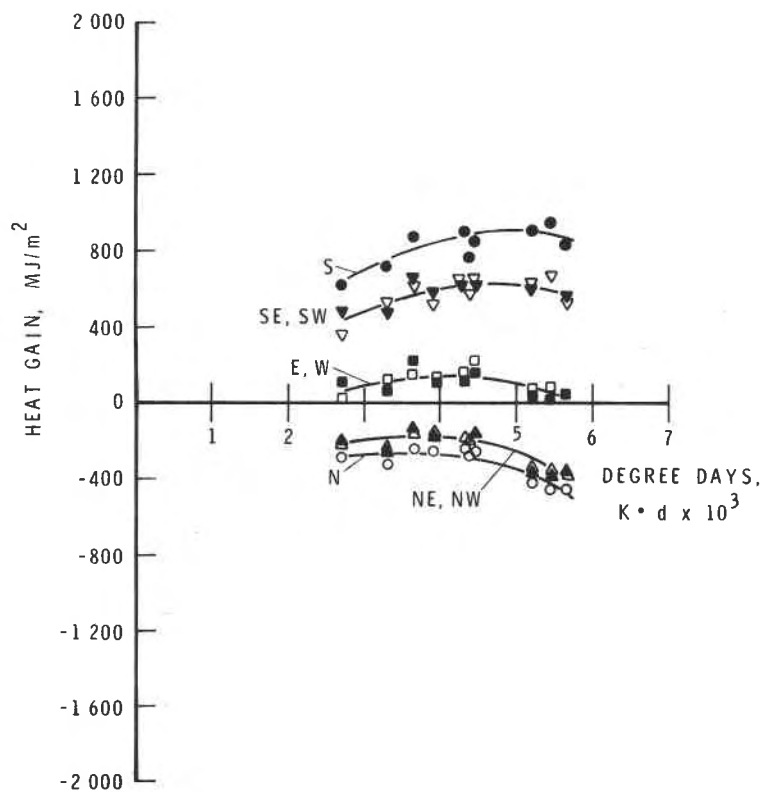


FIGURE 5
NET HEAT GAIN OVER HEATING SEASON,
TRIPLE-GLAZING

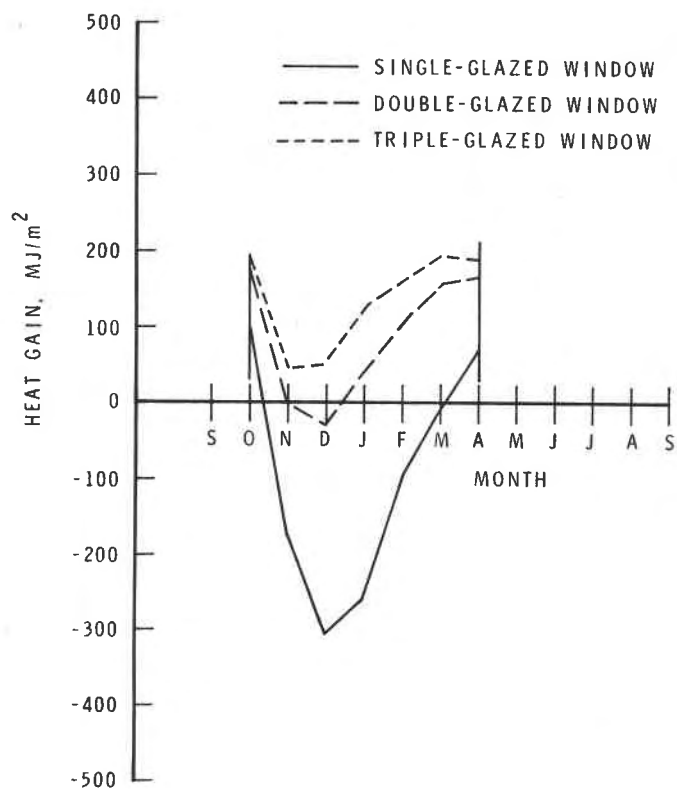


FIGURE 6
NET MONTHLY HEAT GAINS THROUGH A SOUTH
WINDOW, WINNIPEG 1970-1971

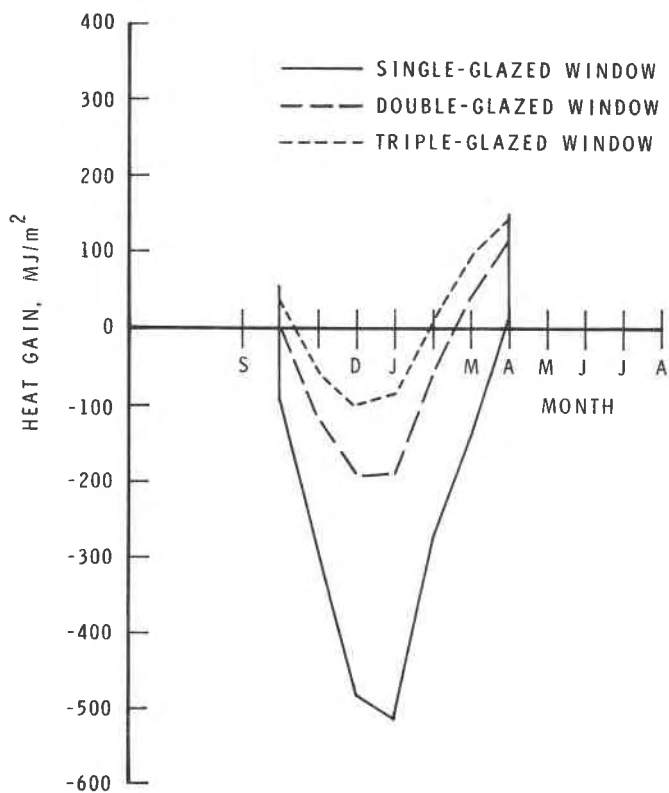


FIGURE 7
NET MONTHLY HEAT GAINS THROUGH A WEST
ORIENTED WINDOW, WINNIPEG 1970-1971

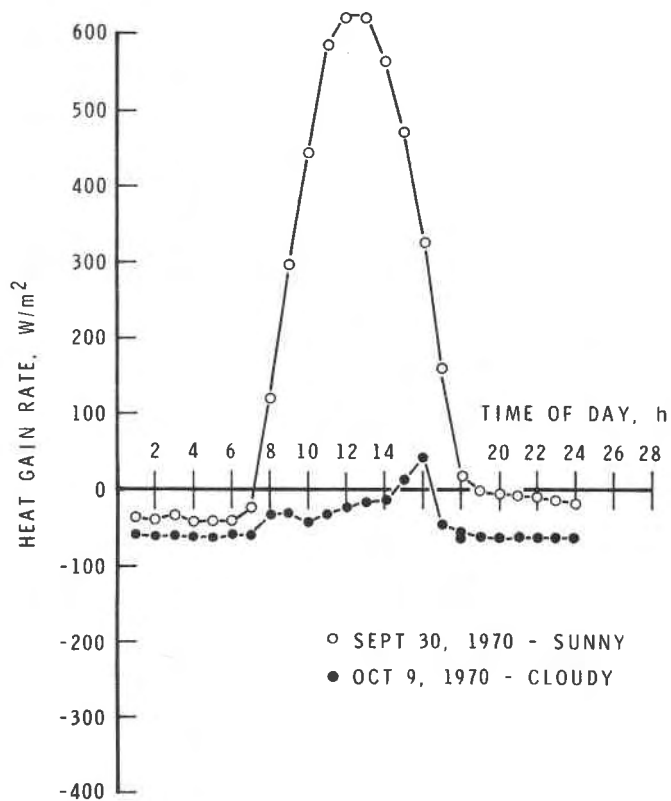


FIGURE 8
DAILY PROFILE OF NET HEAT GAIN FOR SOUTH
DOUBLE-GLAZED WINDOW IN WINNIPEG

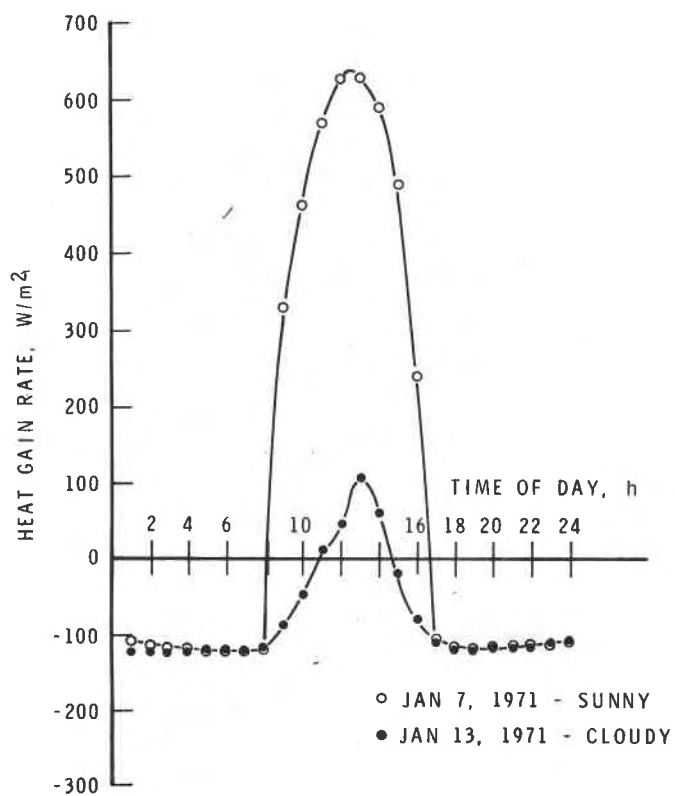


FIGURE 9
DAILY PROFILE OF NET HEAT GAIN FOR SOUTH
DOUBLE-GLAZED WINDOW, WINNIPEG

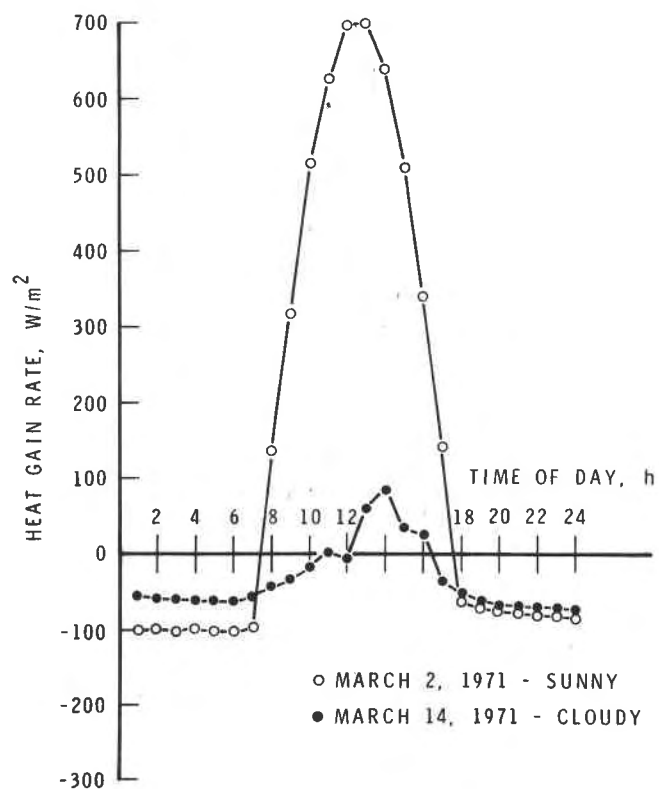


FIGURE 10
DAILY PROFILE OF NET HEAT GAIN FOR
SOUTH DOUBLE-GLAZED WINDOW, WINNIPEG

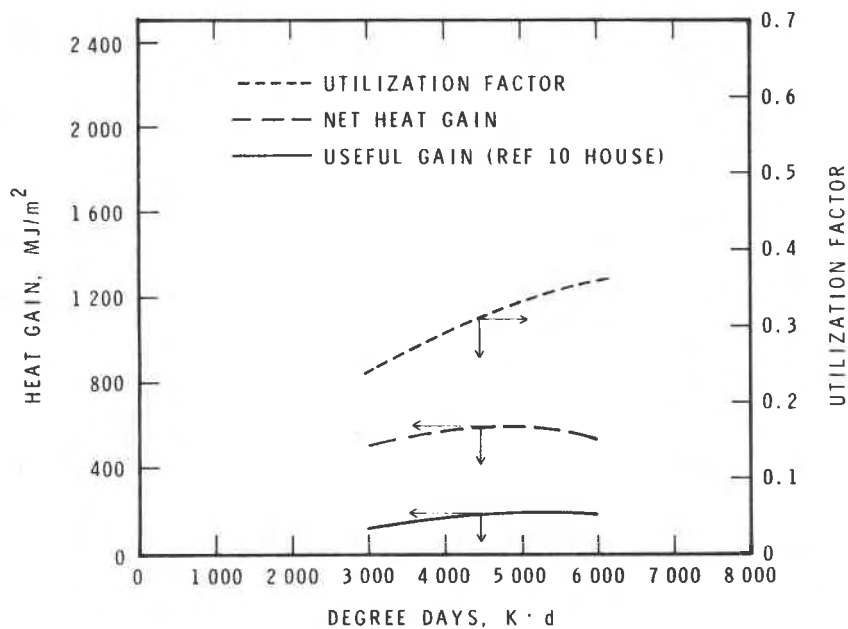


FIGURE 11
UTILIZATION FACTOR FOR THE SOUTH DOUBLE-GLAZED
WINDOWS OF A CONVENTIONAL HOUSE

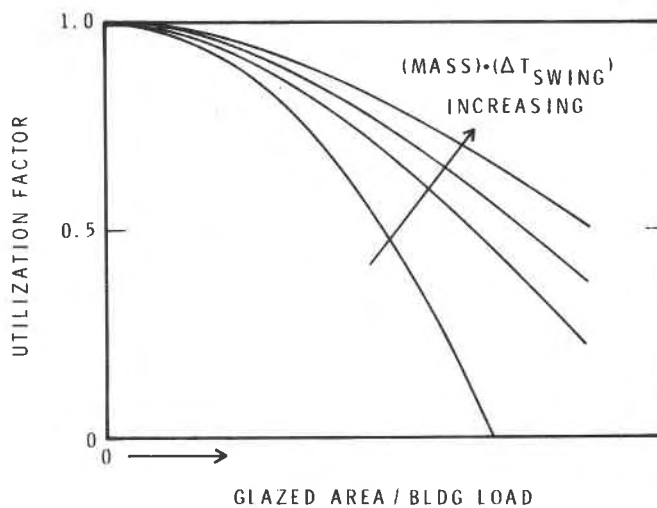


FIGURE 12
EFFECT OF BUILDING PARAMETERS ON
UTILIZATION FACTOR

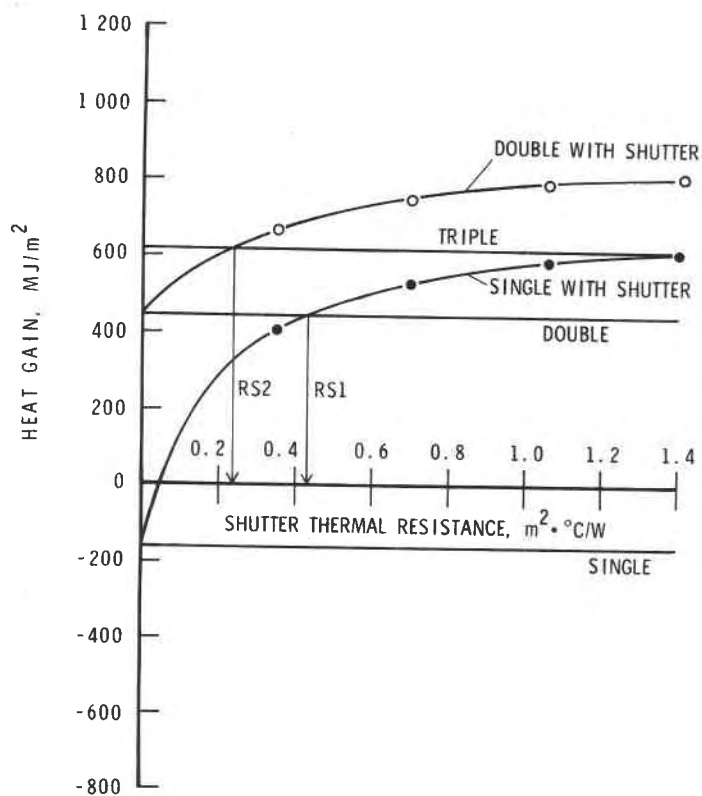


FIGURE 13
INSULATING SHUTTER EFFECT ON NET HEAT GAINS
OVER HEATING SEASON THROUGH SOUTH WINDOW,
VANCOUVER 1970-1971

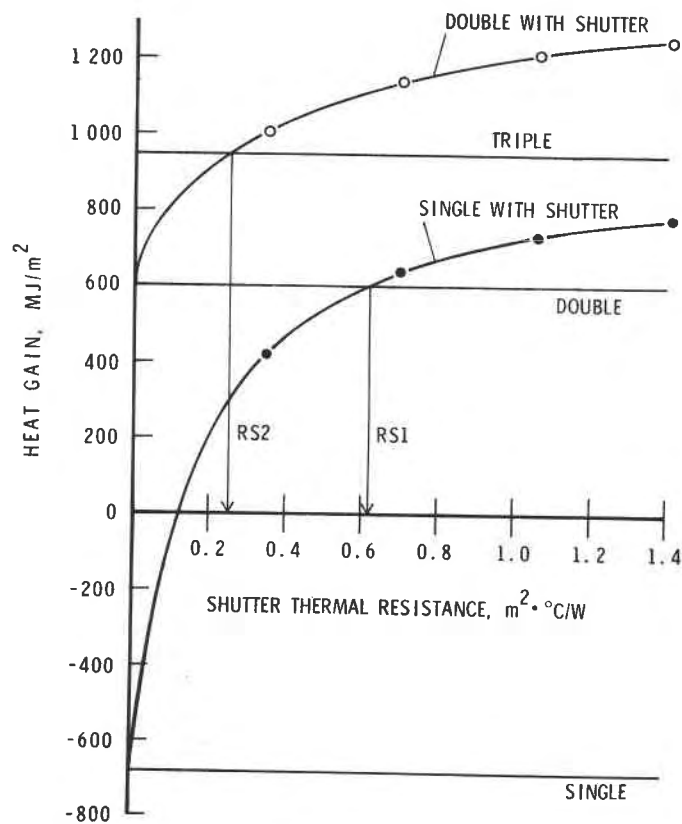


FIGURE 14
INSULATING SHUTTER EFFECT ON NET HEAT
GAINS OVER HEATING SEASON THROUGH SOUTH
WINDOW, WINNIPEG 1970-1971

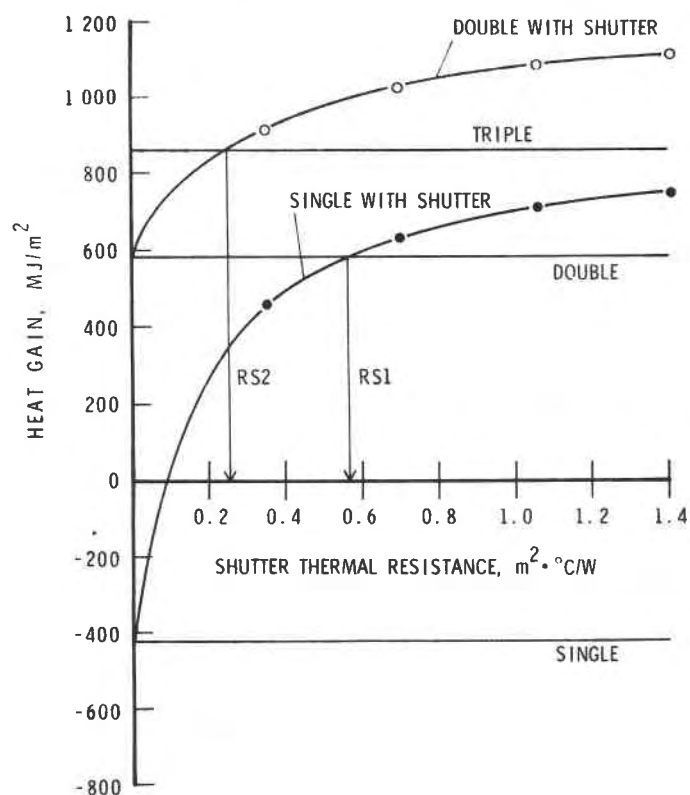


FIGURE 15
INSULATING SHUTTER EFFECT ON NET HEAT
GAINS OVER HEATING SEASON THROUGH
SOUTH WINDOW, OTTAWA 1971-1972

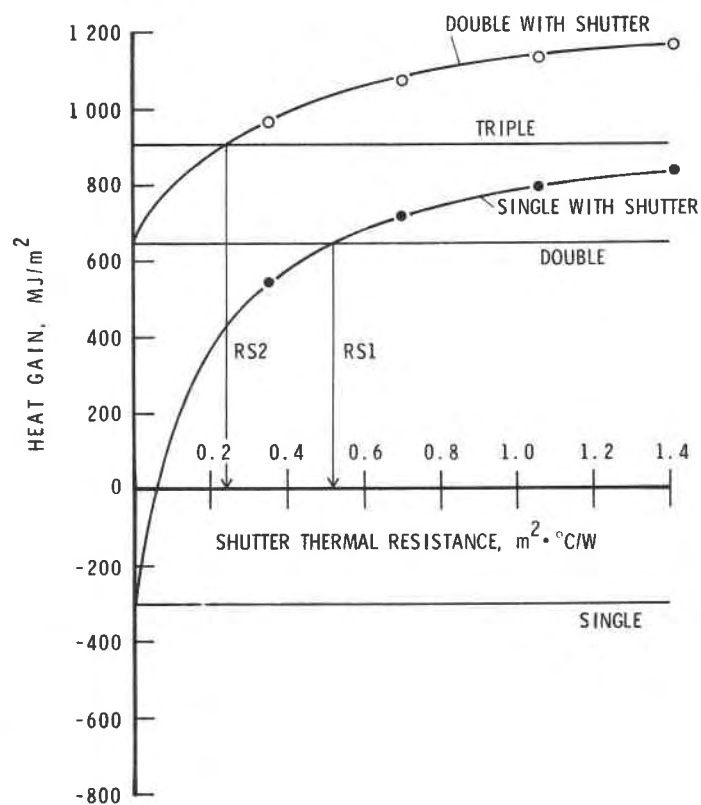


FIGURE 16
INSULATING SHUTTER EFFECT ON NET HEAT
GAINS OVER HEATING SEASON THROUGH
SOUTH WINDOW, FREDERICTON 1970-1971

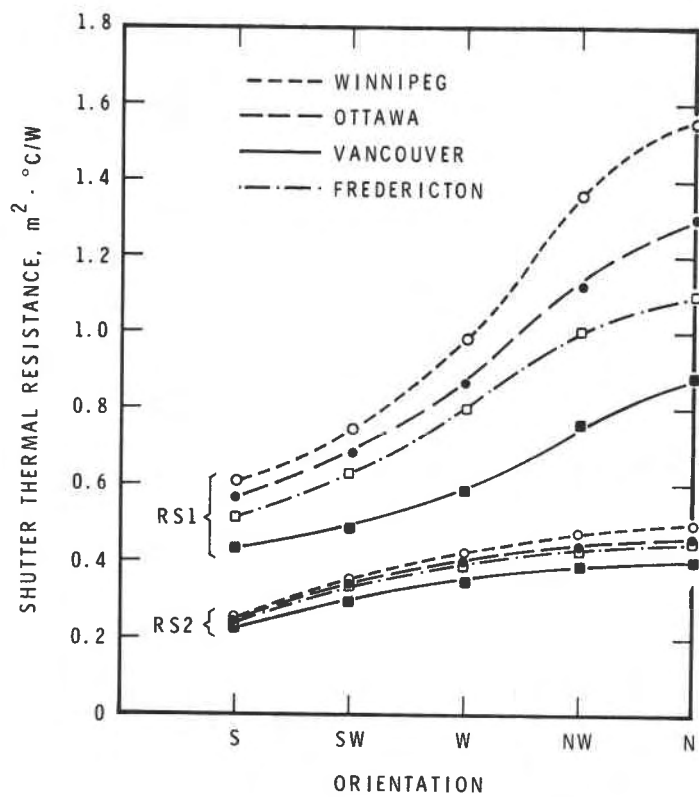


FIGURE 17

EFFECT OF LOCATION AND ORIENTATION ON
EQUIVALENT SHUTTER RESISTANCES (RS1 & RS2)

TABLE 1 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

VANCOUVER 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	160.	INC. RADN :	88.	137.	253.	351.	399.	367.	267.	140.
		SOLAR GAIN:	72.	109.	209.	233.	327.	306.	219.	111.
		COND. LOSS:	115.	115.	115.	115.	115.	115.	115.	115.
		NET GAIN :	-43.	-6.	94.	178.	212.	191.	105.	-4.
OCT.	289.	INC. RADN :	54.	69.	152.	264.	344.	288.	171.	72.
		SOLAR GAIN:	44.	54.	124.	220.	292.	242.	140.	55.
		COND. LOSS:	175.	175.	175.	175.	175.	175.	175.	175.
		NET GAIN :	-131.	-121.	-51.	45.	117.	67.	-35.	-120.
NOV.	381.	INC. RADN :	31.	33.	74.	155.	204.	156.	75.	33.
		SOLAR GAIN:	25.	26.	59.	130.	175.	130.	60.	26.
		COND. LOSS:	222.	222.	222.	222.	222.	222.	222.	222.
		NET GAIN :	-197.	-196.	-162.	-92.	-46.	-91.	-162.	-196.
DEC.	462.	INC. RADN :	30.	30.	47.	89.	118.	95.	50.	30.
		SOLAR GAIN:	24.	24.	37.	74.	101.	79.	40.	24.
		COND. LOSS:	267.	267.	267.	267.	267.	267.	267.	267.
		NET GAIN :	-243.	-243.	-230.	-193.	-167.	-188.	-227.	-243.
JAN.	490.	INC. RADN :	29.	29.	50.	98.	127.	100.	52.	29.
		SOLAR GAIN:	23.	24.	39.	81.	109.	84.	41.	24.
		COND. LOSS:	279.	279.	279.	279.	279.	279.	279.	279.
		NET GAIN :	-256.	-256.	-240.	-198.	-170.	-196.	-238.	-256.
FEB.	388.	INC. RADN :	51.	55.	99.	180.	258.	230.	139.	62.
		SOLAR GAIN:	41.	44.	79.	149.	219.	194.	113.	48.
		COND. LOSS:	223.	223.	223.	223.	223.	223.	223.	223.
		NET GAIN :	-181.	-179.	-143.	-74.	-3.	-29.	-109.	-175.
MAR.	423.	INC. RADN :	90.	118.	202.	288.	348.	320.	229.	125.
		SOLAR GAIN:	73.	94.	165.	239.	287.	267.	188.	99.
		COND. LOSS:	252.	252.	252.	252.	252.	252.	252.	252.
		NET GAIN :	-179.	-158.	-87.	-13.	35.	15.	-64.	-153.
APR.	293.	INC. RADN :	112.	163.	253.	307.	320.	333.	285.	182.
		SOLAR GAIN:	89.	130.	208.	253.	256.	275.	236.	146.
		COND. LOSS:	183.	183.	183.	183.	183.	183.	183.	183.
		NET GAIN :	-94.	-53.	25.	70.	73.	92.	52.	-38.
MAY	193.	INC. RADN :	170.	245.	346.	369.	344.	402.	395.	281.
		SOLAR GAIN:	132.	198.	285.	299.	264.	326.	327.	228.
		COND. LOSS:	135.	135.	135.	135.	135.	135.	135.	135.
		NET GAIN :	-3.	63.	151.	164.	129.	192.	193.	93.
JUNE	143.	INC. RADN :	164.	179.	219.	227.	227.	285.	305.	243.
		SOLAR GAIN:	129.	146.	179.	182.	175.	229.	252.	199.
		COND. LOSS:	110.	110.	110.	110.	110.	110.	110.	110.
		NET GAIN :	19.	35.	68.	72.	64.	119.	142.	88.
JULY	65.	INC. RADN :	200.	296.	409.	411.	359.	435.	445.	324.
		SOLAR GAIN:	154.	241.	338.	331.	273.	351.	369.	264.
		COND. LOSS:	60.	60.	60.	60.	60.	60.	60.	60.
		NET GAIN :	93.	181.	278.	271.	212.	290.	309.	203.
AUG.	40.	INC. RADN :	143.	215.	320.	367.	368.	412.	374.	246.
		SOLAR GAIN:	111.	173.	264.	300.	290.	339.	311.	199.
		COND. LOSS:	48.	48.	48.	48.	48.	48.	48.	48.
		NET GAIN :	64.	125.	217.	253.	242.	291.	263.	151.
TOTALS**	2727.	INC. RADN :	396.	497.	877.	1381.	1720.	1522.	1002.	533.
		SOLAR GAIN:	320.	395.	712.	1147.	1439.	1270.	817.	422.
		COND. LOSS:	1601.	1601.	1601.	1601.	1601.	1601.	1601.	1601.
		NET GAIN :	-1281.	-1206.	-889.	-454.	-162.	-331.	-734.	-1179.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 2 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

VANCOUVER 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	160.	INC. RADN :	88.	137.	253.	351.	399.	367.	267.	140.
		SOLAR GAIN:	63.	96.	185.	260.	289.	272.	194.	97.
		COND. LOSS:	62.	62.	62.	62.	62.	62.	62.	62.
		NET GAIN :	1.	34.	123.	198.	227.	210.	133.	35.
OCT.	289.	INC. RADN :	54.	69.	152.	264.	344.	288.	171.	72.
		SOLAR GAIN:	39.	47.	110.	196.	260.	216.	123.	48.
		COND. LOSS:	94.	94.	94.	94.	94.	94.	94.	94.
		NET GAIN :	-55.	-47.	16.	102.	167.	122.	30.	-46.
NOV.	381.	INC. RADN :	31.	33.	74.	155.	204.	156.	75.	33.
		SOLAR GAIN:	22.	23.	52.	116.	157.	116.	52.	23.
		COND. LOSS:	116.	116.	116.	116.	116.	116.	116.	116.
		NET GAIN :	-94.	-93.	-64.	-0.	41.	-0.	-64.	-93.
DEC.	462.	INC. RADN :	30.	30.	47.	89.	118.	95.	50.	30.
		SOLAR GAIN:	21.	21.	32.	66.	90.	70.	35.	21.
		COND. LOSS:	138.	138.	138.	138.	138.	138.	138.	138.
		NET GAIN :	-116.	-116.	-105.	-72.	-48.	-67.	-102.	-116.
JAN.	490.	INC. RADN :	29.	29.	50.	98.	127.	100.	52.	29.
		SOLAR GAIN:	21.	21.	34.	72.	98.	74.	36.	21.
		COND. LOSS:	144.	144.	144.	144.	144.	144.	144.	144.
		NET GAIN :	-123.	-123.	-109.	-71.	-46.	-69.	-108.	-123.
FEB.	388.	INC. RADN :	51.	55.	99.	180.	258.	230.	139.	62.
		SOLAR GAIN:	37.	38.	70.	132.	196.	173.	100.	42.
		COND. LOSS:	116.	116.	116.	116.	116.	116.	116.	116.
		NET GAIN :	-80.	-78.	-46.	16.	80.	57.	-16.	-74.
MAR.	423.	INC. RADN :	90.	118.	202.	288.	348.	320.	229.	125.
		SOLAR GAIN:	65.	82.	146.	212.	255.	238.	166.	87.
		COND. LOSS:	129.	129.	129.	129.	129.	129.	129.	129.
		NET GAIN :	-65.	-47.	17.	83.	125.	108.	37.	-43.
APR.	293.	INC. RADN :	112.	163.	253.	307.	320.	333.	235.	182.
		SOLAR GAIN:	78.	114.	184.	224.	225.	244.	209.	128.
		COND. LOSS:	96.	96.	96.	96.	96.	96.	96.	96.
		NET GAIN :	-18.	18.	88.	128.	129.	148.	113.	32.
MAY	193.	INC. RADN :	170.	245.	346.	369.	344.	402.	395.	281.
		SOLAR GAIN:	115.	174.	253.	263.	228.	288.	291.	201.
		COND. LOSS:	71.	72.	72.	72.	72.	72.	72.	72.
		NET GAIN :	43.	102.	181.	192.	156.	216.	219.	129.
JUNE	143.	INC. RADN :	164.	179.	219.	227.	227.	285.	305.	243.
		SOLAR GAIN:	113.	129.	158.	160.	151.	202.	224.	176.
		COND. LOSS:	59.	59.	59.	59.	59.	59.	59.	59.
		NET GAIN :	54.	70.	99.	101.	92.	143.	165.	117.
JULY	65.	INC. RADN :	200.	296.	409.	411.	359.	435.	445.	324.
		SOLAR GAIN:	133.	213.	300.	292.	235.	308.	328.	233.
		COND. LOSS:	33.	33.	33.	33.	33.	33.	33.	33.
		NET GAIN :	100.	180.	268.	259.	202.	276.	295.	200.
AUG.	40.	INC. RADN :	143.	215.	320.	367.	368.	412.	374.	246.
		SOLAR GAIN:	97.	152.	234.	266.	253.	300.	276.	175.
		COND. LOSS:	26.	26.	26.	26.	26.	26.	26.	26.
		NET GAIN :	71.	126.	208.	240.	227.	274.	250.	149.
TOTALS**	2727.	INC. RADN :	396.	497.	877.	1381.	1720.	1522.	1002.	533.
		SOLAR GAIN:	282.	347.	629.	1019.	1281.	1130.	723.	370.
		COND. LOSS:	832.	832.	832.	833.	833.	833.	832.	832.
		NET GAIN :	-550.	-485.	-204.	186.	448.	298.	-110.	-463.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 3 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

VANCOUVER 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	160.	INC. RADN :	88.	137.	253.	351.	399.	367.	267.	140.
		SOLAR GAIN:	58.	87.	170.	239.	265.	250.	178.	89.
		COND. LOSS:	42.	42.	42.	42.	42.	42.	42.	42.
		NET GAIN :	16.	45.	128.	197.	223.	208.	137.	47.
OCT.	289.	INC. RADN :	54.	69.	152.	264.	344.	288.	171.	72.
		SOLAR GAIN:	36.	43.	100.	180.	240.	198.	113.	44.
		COND. LOSS:	63.	63.	63.	63.	63.	63.	63.	63.
		NET GAIN :	-27.	-20.	37.	117.	176.	135.	50.	-19.
NOV.	381.	INC. RADN :	31.	33.	74.	155.	204.	156.	75.	33.
		SOLAR GAIN:	20.	21.	47.	106.	145.	106.	48.	21.
		COND. LOSS:	78.	78.	78.	78.	78.	78.	78.	78.
		NET GAIN :	-58.	-57.	-30.	28.	67.	29.	-30.	-57.
DEC.	462.	INC. RADN :	30.	30.	47.	89.	118.	95.	50.	30.
		SOLAR GAIN:	19.	19.	29.	60.	83.	64.	32.	19.
		COND. LOSS:	92.	92.	92.	92.	92.	92.	92.	92.
		NET GAIN :	-73.	-72.	-63.	-32.	-9.	-28.	-60.	-72.
JAN.	490.	INC. RADN :	29.	29.	50.	98.	127.	100.	52.	29.
		SOLAR GAIN:	19.	19.	31.	66.	90.	68.	33.	19.
		COND. LOSS:	96.	96.	96.	96.	96.	96.	96.	96.
		NET GAIN :	-77.	-77.	-65.	-30.	-6.	-28.	-63.	-77.
FEB.	388.	INC. RADN :	51.	55.	99.	180.	258.	230.	139.	62.
		SOLAR GAIN:	33.	35.	64.	121.	181.	159.	92.	38.
		COND. LOSS:	78.	78.	78.	78.	78.	78.	78.	78.
		NET GAIN :	-44.	-43.	-14.	43.	103.	81.	14.	-40.
MAR.	423.	INC. RADN :	90.	118.	202.	288.	348.	320.	229.	125.
		SOLAR GAIN:	59.	75.	134.	195.	234.	218.	152.	79.
		COND. LOSS:	86.	86.	86.	86.	87.	86.	86.	86.
		NET GAIN :	-27.	-11.	48.	108.	147.	132.	66.	-7.
APR.	293.	INC. RADN :	112.	163.	253.	307.	320.	333.	285.	182.
		SOLAR GAIN:	71.	104.	169.	206.	205.	224.	192.	117.
		COND. LOSS:	64.	64.	64.	64.	64.	64.	64.	64.
		NET GAIN :	7.	40.	105.	141.	141.	160.	128.	53.
MAY	193.	INC. RADN :	170.	245.	346.	369.	344.	402.	395.	281.
		SOLAR GAIN:	104.	159.	232.	241.	207.	264.	266.	184.
		COND. LOSS:	48.	48.	48.	48.	48.	48.	48.	48.
		NET GAIN :	56.	111.	184.	193.	159.	216.	218.	136.
JUNE	143.	INC. RADN :	164.	179.	219.	227.	227.	285.	305.	243.
		SOLAR GAIN:	103.	117.	144.	146.	137.	184.	205.	161.
		COND. LOSS:	39.	39.	39.	39.	39.	39.	39.	39.
		NET GAIN :	64.	78.	105.	107.	97.	145.	166.	121.
JULY	65.	INC. RADN :	200.	296.	409.	411.	359.	435.	445.	324.
		SOLAR GAIN:	121.	195.	275.	267.	212.	282.	301.	213.
		COND. LOSS:	22.	22.	22.	22.	22.	22.	22.	22.
		NET GAIN :	99.	172.	253.	245.	190.	260.	279.	191.
AUG.	40.	INC. RADN :	143.	215.	320.	367.	368.	412.	374.	246.
		SOLAR GAIN:	88.	139.	215.	244.	230.	275.	253.	160.
		COND. LOSS:	18.	18.	18.	18.	18.	18.	18.	18.
		NET GAIN :	71.	122.	197.	226.	213.	258.	235.	142.
TOTALS**	2727.	INC. RADN :	396.	497.	877.	1381.	1720.	1522.	1002.	533.
		SOLAR GAIN:	258.	316.	575.	934.	1177.	1038.	662.	337.
		COND. LOSS:	557.	557.	557.	558.	558.	558.	557.	557.
		NET GAIN :	-299.	-241.	18.	376.	619.	480.	104.	-220.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 4 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

EDMONTON 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	261.	INC. RADN :	88.	148.	281.	394.	430.	373.	258.	135.
		SOLAR GAIN:	71.	117.	232.	330.	354.	312.	212.	107.
		COND. LOSS:	173.	173.	173.	173.	173.	173.	173.	173.
		NET GAIN :	-102.	-56.	59.	156.	181.	138.	33.	-66.
OCT.	502.	INC. RADN :	75.	96.	203.	331.	398.	314.	188.	93.
		SOLAR GAIN:	61.	75.	167.	278.	336.	262.	153.	72.
		COND. LOSS:	283.	283.	283.	283.	283.	283.	283.	283.
		NET GAIN :	-221.	-208.	-116.	-5.	53.	-21.	-129.	-210.
NOV.	850.	INC. RADN :	70.	71.	116.	204.	259.	206.	118.	71.
		SOLAR GAIN:	57.	57.	93.	169.	220.	172.	95.	57.
		COND. LOSS:	440.	440.	440.	440.	440.	440.	440.	440.
		NET GAIN :	-384.	-383.	-347.	-271.	-220.	-269.	-346.	-383.
DEC.	1143.	INC. RADN :	54.	54.	95.	196.	257.	200.	98.	54.
		SOLAR GAIN:	44.	44.	76.	163.	220.	167.	78.	44.
		COND. LOSS:	570.	570.	570.	570.	570.	570.	570.	570.
		NET GAIN :	-526.	-526.	-494.	-407.	-350.	-403.	-492.	-526.
JAN.	1142.	INC. RADN :	64.	65.	97.	179.	234.	191.	106.	65.
		SOLAR GAIN:	52.	53.	78.	148.	199.	159.	84.	53.
		COND. LOSS:	588.	588.	588.	588.	588.	588.	588.	588.
		NET GAIN :	-536.	-536.	-511.	-440.	-389.	-429.	-504.	-536.
FEB.	767.	INC. RADN :	118.	125.	195.	315.	394.	328.	206.	127.
		SOLAR GAIN:	96.	100.	158.	261.	332.	273.	166.	101.
		COND. LOSS:	402.	402.	402.	402.	402.	402.	402.	402.
		NET GAIN :	-307.	-302.	-244.	-141.	-70.	-130.	-236.	-301.
MAR.	821.	INC. RADN :	233.	267.	388.	525.	613.	554.	414.	274.
		SOLAR GAIN:	189.	214.	317.	434.	507.	460.	338.	220.
		COND. LOSS:	443.	443.	443.	443.	443.	443.	443.	443.
		NET GAIN :	-253.	-228.	-126.	-9.	64.	17.	-105.	-223.
APR.	447.	INC. RADN :	214.	299.	438.	520.	528.	525.	444.	303.
		SOLAR GAIN:	171.	241.	361.	429.	426.	433.	366.	244.
		COND. LOSS:	265.	265.	265.	265.	265.	265.	265.	265.
		NET GAIN :	-94.	-24.	96.	164.	161.	168.	101.	-21.
MAY	187.	INC. RADN :	198.	314.	448.	464.	403.	428.	405.	289.
		SOLAR GAIN:	152.	255.	372.	378.	315.	347.	335.	235.
		COND. LOSS:	129.	129.	129.	129.	129.	129.	129.	129.
		NET GAIN :	24.	126.	243.	250.	186.	219.	206.	106.
JUNE	148.	INC. RADN :	184.	265.	337.	318.	264.	295.	299.	234.
		SOLAR GAIN:	144.	218.	280.	256.	204.	238.	248.	191.
		COND. LOSS:	111.	111.	111.	111.	111.	111.	111.	111.
		NET GAIN :	33.	107.	169.	145.	93.	127.	136.	80.
JULY	122.	INC. RADN :	215.	280.	389.	414.	388.	450.	457.	339.
		SOLAR GAIN:	167.	228.	321.	334.	302.	363.	379.	277.
		COND. LOSS:	94.	94.	94.	94.	94.	94.	94.	94.
		NET GAIN :	73.	134.	228.	241.	208.	269.	286.	184.
AUG.	86.	INC. RADN :	152.	261.	401.	461.	452.	484.	417.	259.
		SOLAR GAIN:	117.	212.	333.	379.	361.	400.	345.	208.
		COND. LOSS:	68.	68.	68.	68.	68.	68.	68.	68.
		NET GAIN :	49.	144.	266.	311.	293.	332.	278.	140.
TOTALS**	5673.	INC. RADN :	828.	977.	1533.	2271.	2682.	2317.	1573.	938.
		SOLAR GAIN:	670.	784.	1249.	1884.	2241.	1925.	1281.	792.
		COND. LOSS:	2992.	2992.	2992.	2992.	2992.	2992.	2992.	2992.
		NET GAIN :	-2322.	-2208.	-1743.	-1108.	-751.	-1067.	-1711.	-2200.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 5 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

EDMONTON 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	281.	INC. RADN :	88.	148.	281.	394.	430.	373.	258.	135.
		SOLAR GAIN:	63.	103.	206.	293.	314.	277.	187.	94.
		COND. LOSS:	90.	91.	91.	91.	91.	91.	91.	91.
		NET GAIN :	-28.	12.	115.	203.	223.	187.	97.	3.
OCT.	502.	INC. RADN :	75.	96.	203.	331.	398.	314.	188.	93.
		SOLAR GAIN:	54.	65.	148.	248.	300.	234.	136.	63.
		COND. LOSS:	145.	145.	145.	145.	145.	145.	145.	145.
		NET GAIN :	-91.	-80.	2.	103.	155.	88.	-10.	-82.
NOV.	850.	INC. RADN :	70.	71.	116.	204.	259.	206.	118.	71.
		SOLAR GAIN:	50.	50.	82.	150.	197.	152.	83.	50.
		COND. LOSS:	223.	223.	223.	223.	223.	223.	223.	223.
		NET GAIN :	-173.	-172.	-141.	-73.	-26.	-71.	-139.	-172.
DEC.	1143.	INC. RADN :	54.	54.	95.	196.	257.	200.	98.	54.
		SOLAR GAIN:	39.	39.	66.	145.	197.	148.	68.	39.
		COND. LOSS:	287.	287.	287.	287.	287.	287.	287.	287.
		NET GAIN :	-248.	-248.	-221.	-142.	-91.	-139.	-219.	-248.
JAN.	1142.	INC. RADN :	64.	65.	97.	179.	234.	191.	106.	65.
		SOLAR GAIN:	46.	46.	68.	132.	178.	141.	74.	46.
		COND. LOSS:	291.	291.	291.	291.	291.	291.	291.	291.
		NET GAIN :	-245.	-244.	-223.	-159.	-113.	-150.	-217.	-244.
FEB.	767.	INC. RADN :	118.	125.	195.	315.	394.	328.	206.	127.
		SOLAR GAIN:	85.	88.	139.	232.	297.	242.	147.	89.
		COND. LOSS:	203.	203.	203.	203.	204.	203.	203.	203.
		NET GAIN :	-119.	-115.	-64.	28.	93.	39.	-56.	-114.
MAR.	821.	INC. RADN :	233.	267.	388.	525.	613.	554.	414.	274.
		SOLAR GAIN:	167.	188.	280.	385.	450.	408.	299.	193.
		COND. LOSS:	221.	221.	222.	222.	222.	222.	222.	221.
		NET GAIN :	-54.	-33.	58.	164.	228.	187.	78.	-28.
APR.	447.	INC. RADN :	214.	299.	438.	520.	528.	525.	444.	303.
		SOLAR GAIN:	150.	212.	320.	381.	376.	384.	325.	215.
		COND. LOSS:	135.	135.	135.	135.	135.	135.	135.	135.
		NET GAIN :	15.	77.	185.	246.	241.	249.	190.	80.
MAY	187.	INC. RADN :	198.	314.	448.	464.	403.	428.	405.	289.
		SOLAR GAIN:	133.	225.	331.	334.	275.	306.	298.	207.
		COND. LOSS:	67.	67.	67.	67.	67.	67.	67.	67.
		NET GAIN :	65.	158.	263.	267.	207.	239.	230.	140.
JUNE	148.	INC. RADN :	184.	265.	337.	318.	264.	295.	299.	234.
		SOLAR GAIN:	125.	193.	249.	226.	177.	209.	220.	168.
		COND. LOSS:	58.	58.	58.	58.	58.	58.	58.	58.
		NET GAIN :	67.	135.	191.	168.	119.	151.	162.	110.
JULY	122.	INC. RADN :	215.	280.	389.	414.	388.	450.	457.	339.
		SOLAR GAIN:	145.	201.	285.	295.	262.	319.	337.	245.
		COND. LOSS:	49.	49.	49.	49.	49.	49.	49.	49.
		NET GAIN :	96.	151.	235.	245.	213.	270.	288.	196.
AUG.	86.	INC. RADN :	152.	261.	401.	461.	452.	484.	417.	259.
		SOLAR GAIN:	102.	187.	296.	335.	316.	355.	307.	183.
		COND. LOSS:	36.	36.	36.	36.	36.	36.	36.	36.
		NET GAIN :	66.	151.	260.	299.	280.	319.	271.	147.
TOTALS**	5073.	INC. RADN :	828.	977.	1533.	2271.	2682.	2317.	1573.	988.
		SOLAR GAIN:	591.	689.	1103.	1673.	1993.	1710.	1132.	696.
		COND. LOSS:	1505.	1505.	1506.	1507.	1507.	1506.	1505.	1505.
		NET GAIN :	-914.	-815.	-402.	166.	486.	203.	-374.	-803.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 6 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

EDMONTON 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	281.	INC. RADN :	88.	148.	281.	394.	430.	373.	258.	135.
		SOLAR GAIN:	57.	94.	189.	269.	288.	254.	172.	85.
		COND. LOSS:	61.	61.	61.	61.	61.	61.	61.	61.
		NET GAIN :	-3.	33.	128.	209.	227.	194.	111.	25.
OCT.	502.	INC. RADN :	75.	96.	203.	331.	398.	314.	188.	93.
		SOLAR GAIN:	50.	59.	135.	228.	276.	214.	124.	57.
		COND. LOSS:	97.	97.	97.	97.	97.	97.	97.	97.
		NET GAIN :	-47.	-38.	38.	130.	179.	117.	27.	-40.
NOV.	850.	INC. RADN :	70.	71.	116.	204.	259.	206.	113.	71.
		SOLAR GAIN:	46.	46.	75.	138.	181.	140.	76.	46.
		COND. LOSS:	147.	147.	147.	148.	148.	148.	147.	147.
		NET GAIN :	-101.	-101.	-72.	-10.	34.	-8.	-71.	-101.
DEC.	1143.	INC. RADN :	54.	54.	95.	196.	257.	200.	98.	54.
		SOLAR GAIN:	35.	35.	61.	133.	181.	136.	62.	35.
		COND. LOSS:	188.	188.	189.	189.	189.	189.	189.	188.
		NET GAIN :	-153.	-153.	-128.	-55.	-8.	-52.	-126.	-153.
JAN.	1142.	INC. RADN :	64.	65.	97.	179.	234.	191.	106.	65.
		SOLAR GAIN:	42.	42.	62.	121.	164.	130.	68.	42.
		COND. LOSS:	190.	190.	190.	190.	190.	190.	190.	190.
		NET GAIN :	-147.	-147.	-127.	-69.	-26.	-60.	-122.	-147.
FEB.	767.	INC. RADN :	118.	125.	195.	315.	394.	328.	206.	127.
		SOLAR GAIN:	77.	81.	127.	213.	273.	222.	134.	81.
		COND. LOSS:	134.	134.	135.	135.	135.	135.	135.	134.
		NET GAIN :	-57.	-54.	-7.	78.	138.	87.	-0.	-53.
MAR.	821.	INC. RADN :	233.	267.	388.	525.	613.	554.	414.	274.
		SOLAR GAIN:	153.	172.	256.	353.	413.	375.	274.	177.
		COND. LOSS:	146.	146.	147.	147.	147.	147.	147.	146.
		NET GAIN :	7.	26.	110.	206.	266.	228.	127.	30.
APR.	447.	INC. RADN :	214.	299.	438.	520.	528.	525.	444.	303.
		SOLAR GAIN:	137.	194.	293.	349.	344.	352.	298.	197.
		COND. LOSS:	90.	90.	90.	90.	90.	90.	90.	90.
		NET GAIN :	47.	104.	203.	259.	254.	262.	208.	107.
MAY	187.	INC. RADN :	198.	314.	448.	464.	403.	428.	405.	289.
		SOLAR GAIN:	120.	206.	303.	307.	250.	281.	273.	190.
		COND. LOSS:	45.	45.	45.	45.	45.	45.	45.	45.
		NET GAIN :	75.	161.	258.	261.	205.	236.	228.	145.
JUNE	148.	INC. RADN :	184.	265.	337.	318.	264.	295.	299.	234.
		SOLAR GAIN:	114.	176.	228.	207.	161.	192.	201.	154.
		COND. LOSS:	39.	39.	39.	39.	39.	39.	39.	39.
		NET GAIN :	75.	138.	190.	168.	122.	153.	163.	115.
JULY	122.	INC. RADN :	215.	280.	389.	414.	388.	450.	457.	339.
		SOLAR GAIN:	132.	184.	261.	270.	238.	292.	309.	225.
		COND. LOSS:	33.	33.	33.	33.	33.	33.	33.	33.
		NET GAIN :	99.	151.	228.	237.	205.	259.	276.	192.
AUG.	86.	INC. RADN :	152.	261.	401.	461.	452.	484.	417.	259.
		SOLAR GAIN:	92.	171.	272.	308.	289.	326.	281.	167.
		COND. LOSS:	24.	24.	24.	24.	24.	24.	24.	24.
		NET GAIN :	68.	147.	247.	283.	265.	301.	257.	143.
TOTALS	5673.	INC. RADN :	828.	977.	1533.	2271.	2682.	2317.	1573.	988.
		SOLAR GAIN:	540.	630.	1010.	1535.	1832.	1569.	1036.	636.
		COND. LOSS:	992.	993.	994.	995.	996.	995.	993.	992.
		NET GAIN :	-452.	-363.	17.	540.	836.	574.	43.	-356.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 7 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

WINNIPEG 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	187.	INC. RADN :	90.	151.	283.	375.	395.	352.	262.	144.
		SOLAR GAIN:	73.	119.	234.	313.	321.	292.	215.	114.
		COND. LOSS:	129.	129.	129.	129.	129.	129.	129.	129.
		NET GAIN :	-56.	-10.	105.	184.	192.	163.	86.	-15.
OCT.	377.	INC. RADN :	59.	83.	202.	334.	393.	298.	172.	77.
		SOLAR GAIN:	49.	64.	165.	280.	331.	247.	139.	59.
		COND. LOSS:	238.	238.	238.	238.	238.	238.	238.	238.
		NET GAIN :	-190.	-175.	-73.	41.	92.	9.	-99.	-179.
NOV.	676.	INC. RADN :	51.	53.	102.	189.	244.	189.	102.	52.
		SOLAR GAIN:	41.	42.	82.	158.	208.	157.	82.	42.
		COND. LOSS:	382.	382.	382.	382.	382.	382.	382.	382.
		NET GAIN :	-341.	-340.	-300.	-224.	-174.	-224.	-300.	-340.
DEC.	1089.	INC. RADN :	73.	74.	136.	264.	340.	261.	134.	74.
		SOLAR GAIN:	59.	59.	108.	220.	290.	217.	107.	60.
		COND. LOSS:	593.	593.	593.	593.	593.	593.	593.	593.
		NET GAIN :	-534.	-533.	-485.	-373.	-303.	-376.	-486.	-533.
JAN.	1243.	INC. RADN :	97.	99.	190.	368.	477.	368.	190.	99.
		SOLAR GAIN:	78.	79.	152.	306.	406.	305.	151.	79.
		COND. LOSS:	666.	666.	666.	666.	666.	666.	666.	666.
		NET GAIN :	-588.	-587.	-514.	-361.	-260.	-361.	-515.	-587.
FEB.	879.	INC. RADN :	131.	145.	235.	361.	446.	376.	247.	147.
		SOLAR GAIN:	107.	116.	191.	299.	374.	312.	200.	116.
		COND. LOSS:	473.	473.	473.	473.	473.	473.	473.	473.
		NET GAIN :	-366.	-357.	-282.	-174.	-99.	-161.	-273.	-357.
MAR.	750.	INC. RADN :	222.	263.	379.	475.	499.	431.	340.	253.
		SOLAR GAIN:	181.	211.	310.	394.	409.	355.	277.	203.
		COND. LOSS:	416.	416.	416.	416.	416.	416.	416.	416.
		NET GAIN :	-235.	-205.	-106.	-22.	-7.	-61.	-139.	-213.
APR.	445.	INC. RADN :	169.	250.	376.	441.	428.	413.	348.	238.
		SOLAR GAIN:	135.	200.	310.	363.	343.	339.	286.	190.
		COND. LOSS:	273.	273.	273.	273.	273.	273.	273.	273.
		NET GAIN :	-138.	-73.	37.	90.	70.	66.	13.	-82.
MAY	238.	INC. RADN :	193.	322.	457.	459.	384.	434.	425.	301.
		SOLAR GAIN:	147.	262.	379.	372.	294.	351.	351.	244.
		COND. LOSS:	160.	160.	160.	160.	160.	160.	160.	160.
		NET GAIN :	-13.	102.	219.	212.	134.	191.	192.	85.
JUNE	57.	INC. RADN :	199.	291.	377.	358.	297.	341.	349.	269.
		SOLAR GAIN:	155.	238.	312.	287.	226.	273.	288.	220.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	100.	183.	257.	232.	171.	218.	233.	164.
JULY	78.	INC. RADN :	193.	192.	263.	311.	342.	422.	439.	330.
		SOLAR GAIN:	151.	153.	212.	248.	263.	338.	363.	269.
		COND. LOSS:	68.	68.	68.	68.	68.	68.	68.	69.
		NET GAIN :	83.	85.	143.	180.	195.	270.	294.	200.
AUG.	51.	INC. RADN :	147.	246.	379.	429.	407.	446.	402.	261.
		SOLAR GAIN:	113.	198.	314.	352.	320.	365.	333.	210.
		COND. LOSS:	50.	50.	50.	50.	50.	50.	50.	50.
		NET GAIN :	64.	148.	264.	302.	270.	315.	283.	160.
**										
TOTALS	5458.	INC. RADN :	802.	967.	1620.	2433.	2826.	2336.	1533.	939.
		SOLAR GAIN:	649.	771.	1317.	2019.	2360.	1933.	1242.	750.
		COND. LOSS:	3041.	3041.	3041.	3041.	3041.	3041.	3041.	3041.
		NET GAIN :	-2392.	-2270.	-1723.	-1022.	-681.	-1108.	-1799.	-2291.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 8 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

WINNIPEG 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	187.	INC. RADN :	90.	151.	283.	375.	395.	352.	262.	144.
		SOLAR GAIN:	64.	104.	208.	279.	283.	260.	191.	100.
		COND. LOSS:	67.	67.	67.	67.	67.	67.	67.	67.
		NET GAIN :	-2.	38.	141.	212.	217.	193.	124.	33.
OCT.	377.	INC. RADN :	59.	83.	202.	334.	393.	298.	172.	77.
		SOLAR GAIN:	42.	55.	146.	249.	295.	220.	123.	51.
		COND. LOSS:	120.	120.	120.	120.	120.	120.	120.	120.
		NET GAIN :	-78.	-65.	26.	129.	175.	100.	3.	-69.
NOV.	676.	INC. RADN :	51.	53.	102.	189.	244.	189.	102.	52.
		SOLAR GAIN:	36.	37.	72.	140.	187.	140.	72.	37.
		COND. LOSS:	189.	189.	189.	189.	189.	189.	189.	189.
		NET GAIN :	-153.	-152.	-117.	-49.	-3.	-49.	-118.	-153.
DEC.	1089.	INC. RADN :	73.	74.	136.	264.	340.	261.	134.	74.
		SOLAR GAIN:	52.	52.	95.	195.	259.	193.	94.	52.
		COND. LOSS:	287.	287.	287.	287.	287.	287.	287.	287.
		NET GAIN :	-234.	-234.	-192.	-92.	-28.	-94.	-193.	-234.
JAN.	1243.	INC. RADN :	97.	99.	190.	368.	477.	368.	190.	99.
		SOLAR GAIN:	69.	70.	133.	271.	363.	271.	132.	70.
		COND. LOSS:	321.	321.	321.	321.	321.	321.	321.	321.
		NET GAIN :	-251.	-251.	-187.	-50.	42.	-50.	-188.	-251.
FEB.	879.	INC. RADN :	131.	145.	235.	361.	446.	376.	247.	147.
		SOLAR GAIN:	94.	101.	169.	266.	333.	278.	177.	102.
		COND. LOSS:	232.	232.	233.	233.	233.	233.	233.	232.
		NET GAIN :	-138.	-131.	-64.	33.	100.	45.	-56.	-130.
MAR.	750.	INC. RADN :	222.	263.	379.	475.	499.	431.	340.	253.
		SOLAR GAIN:	159.	186.	274.	350.	362.	315.	245.	179.
		COND. LOSS:	207.	207.	207.	207.	207.	207.	207.	207.
		NET GAIN :	-47.	-21.	67.	143.	155.	107.	38.	-23.
APR.	445.	INC. RADN :	169.	250.	376.	441.	428.	413.	348.	238.
		SOLAR GAIN:	119.	176.	275.	322.	301.	300.	253.	168.
		COND. LOSS:	136.	136.	136.	136.	136.	136.	136.	136.
		NET GAIN :	-17.	40.	139.	186.	165.	164.	117.	32.
MAY	238.	INC. RADN :	193.	322.	457.	459.	384.	434.	425.	301.
		SOLAR GAIN:	127.	231.	337.	328.	254.	309.	312.	216.
		COND. LOSS:	82.	82.	82.	82.	82.	82.	82.	82.
		NET GAIN :	45.	149.	255.	246.	172.	227.	230.	133.
JUNE	57.	INC. RADN :	199.	291.	377.	358.	297.	341.	349.	269.
		SOLAR GAIN:	135.	211.	277.	252.	195.	240.	255.	194.
		COND. LOSS:	29.	29.	29.	29.	29.	29.	29.	29.
		NET GAIN :	106.	181.	248.	223.	166.	210.	226.	165.
JULY	78.	INC. RADN :	193.	192.	263.	311.	342.	422.	439.	330.
		SOLAR GAIN:	132.	134.	186.	218.	227.	297.	322.	238.
		COND. LOSS:	36.	36.	36.	36.	36.	36.	36.	36.
		NET GAIN :	96.	98.	150.	182.	191.	261.	286.	201.
AUG.	51.	INC. RADN :	147.	246.	379.	429.	407.	446.	402.	261.
		SOLAR GAIN:	99.	174.	279.	311.	279.	323.	296.	185.
		COND. LOSS:	26.	26.	27.	26.	26.	26.	26.	26.
		NET GAIN :	72.	148.	252.	285.	252.	297.	269.	159.
TOTALS**	5458.	INC. RADN :	802.	967.	1620.	2433.	2826.	2336.	1533.	939.
		SOLAR GAIN:	572.	677.	1164.	1794.	2100.	1716.	1096.	659.
		CUND. LOSS:	1491.	1491.	1492.	1493.	1494.	1493.	1492.	1491.
		NET GAIN :	-919.	-815.	-329.	300.	606.	223.	-396.	-832.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 9 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

WINNIPEG 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	187.	INC. RADN :	90.	151.	283.	375.	395.	352.	262.	144.
		SOLAR GAIN:	59.	95.	191.	256.	260.	239.	175.	91.
		COND. LOSS:	44.	44.	45.	45.	45.	44.	44.	44.
		NET GAIN :	14.	51.	146.	211.	215.	194.	131.	47.
OCT.	377.	INC. RADN :	59.	83.	202.	334.	393.	298.	172.	77.
		SOLAR GAIN:	39.	50.	134.	229.	272.	202.	112.	47.
		COND. LOSS:	79.	79.	80.	80.	80.	80.	80.	79.
		NET GAIN :	-41.	-30.	54.	149.	192.	122.	33.	-33.
NOV.	676.	INC. RADN :	51.	53.	102.	189.	244.	189.	102.	52.
		SOLAR GAIN:	33.	34.	66.	129.	172.	129.	66.	34.
		COND. LOSS:	125.	125.	125.	125.	125.	125.	125.	125.
		NET GAIN :	-92.	-91.	-59.	4.	47.	4.	-59.	-91.
DEC.	1089.	INC. RADN :	73.	74.	136.	264.	340.	261.	134.	74.
		SOLAR GAIN:	48.	48.	87.	180.	239.	177.	86.	48.
		COND. LOSS:	186.	186.	186.	186.	186.	186.	186.	186.
		NET GAIN :	-138.	-138.	-99.	-7.	53.	-9.	-100.	-138.
JAN.	1243.	INC. RADN :	97.	99.	190.	368.	477.	368.	190.	99.
		SOLAR GAIN:	63.	64.	122.	249.	335.	250.	121.	64.
		COND. LOSS:	207.	207.	207.	208.	208.	208.	207.	207.
		NET GAIN :	-143.	-143.	-85.	42.	127.	42.	-86.	-143.
FEB.	879.	INC. RADN :	131.	145.	235.	361.	446.	376.	247.	147.
		SOLAR GAIN:	86.	93.	154.	244.	307.	255.	162.	93.
		COND. LOSS:	152.	152.	152.	152.	153.	152.	152.	152.
		NET GAIN :	-65.	-59.	2.	92.	154.	102.	10.	-59.
MAR.	750.	INC. RADN :	222.	263.	379.	475.	499.	431.	340.	253.
		SOLAR GAIN:	146.	170.	251.	321.	332.	288.	225.	164.
		COND. LOSS:	137.	137.	137.	137.	137.	137.	137.	137.
		NET GAIN :	9.	33.	114.	184.	195.	151.	88.	27.
APR.	445.	INC. RADN :	169.	250.	376.	441.	428.	413.	348.	238.
		SOLAR GAIN:	108.	161.	252.	296.	275.	275.	232.	153.
		COND. LOSS:	90.	90.	90.	90.	90.	90.	90.	90.
		NET GAIN :	19.	71.	162.	206.	185.	185.	142.	64.
MAY	238.	INC. RADN :	193.	322.	457.	459.	384.	434.	425.	301.
		SOLAR GAIN:	115.	211.	309.	301.	231.	284.	286.	197.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	61.	157.	254.	246.	176.	229.	232.	143.
JUNE	57.	INC. RADN :	199.	291.	377.	358.	297.	341.	349.	269.
		SOLAR GAIN:	122.	193.	254.	231.	176.	219.	234.	178.
		COND. LOSS:	20.	20.	20.	20.	20.	20.	20.	20.
		NET GAIN :	103.	173.	234.	211.	157.	199.	214.	158.
JULY	78.	INC. RADN :	193.	192.	263.	311.	342.	422.	439.	330.
		SOLAR GAIN:	120.	123.	170.	200.	206.	272.	295.	217.
		COND. LOSS:	24.	24.	24.	24.	24.	24.	24.	24.
		NET GAIN :	96.	98.	146.	175.	182.	248.	271.	193.
AUG.	51.	INC. RADN :	147.	246.	379.	429.	407.	446.	402.	261.
		SOLAR GAIN:	90.	159.	256.	286.	254.	297.	271.	169.
		COND. LOSS:	18.	18.	18.	18.	18.	18.	18.	18.
		NET GAIN :	72.	142.	238.	268.	236.	279.	253.	151.
TOTALS**	5458.	INC. RADN :	302.	967.	1620.	2433.	2826.	2336.	1533.	939.
		SOLAR GAIN:	524.	618.	1066.	1648.	1932.	1576.	1004.	602.
		COND. LOSS:	975.	975.	976.	978.	979.	977.	976.	975.
		NET GAIN :	-451.	-357.	90.	670.	953.	598.	28.	-373.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 10 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

OTTAWA 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	125.	INC. RADN :	89.	130.	215.	279.	296.	279.	219.	134.
		SOLAR GAIN:	72.	103.	176.	231.	239.	231.	179.	107.
		COND. LOSS:	95.	95.	95.	95.	95.	95.	95.	95.
		NET GAIN :	-23.	9.	82.	136.	144.	136.	85.	12.
OCT.	264.	INC. RADN :	65.	82.	173.	282.	346.	280.	172.	83.
		SOLAR GAIN:	53.	64.	140.	235.	291.	233.	140.	65.
		COND. LOSS:	171.	171.	171.	171.	171.	171.	171.	171.
		NET GAIN :	-118.	-107.	-31.	64.	120.	62.	-31.	-106.
NOV.	454.	INC. RADN :	41.	45.	88.	163.	213.	170.	95.	46.
		SOLAR GAIN:	34.	35.	71.	135.	181.	142.	76.	36.
		COND. LOSS:	266.	266.	266.	266.	266.	266.	266.	266.
		NET GAIN :	-232.	-230.	-195.	-130.	-85.	-123.	-189.	-230.
DEC.	881.	INC. RADN :	87.	88.	144.	253.	319.	251.	143.	88.
		SOLAR GAIN:	70.	71.	116.	209.	270.	207.	115.	71.
		COND. LOSS:	483.	483.	483.	483.	483.	483.	483.	483.
		NET GAIN :	-412.	-412.	-367.	-273.	-212.	-275.	-368.	-412.
JAN.	973.	INC. RADN :	109.	112.	181.	302.	378.	302.	181.	112.
		SOLAR GAIN:	89.	90.	146.	250.	319.	250.	145.	90.
		COND. LOSS:	524.	524.	524.	524.	524.	524.	524.	524.
		NET GAIN :	-436.	-435.	-379.	-275.	-205.	-275.	-379.	-435.
FEB.	732.	INC. RADN :	130.	136.	186.	258.	303.	261.	189.	137.
		SOLAR GAIN:	105.	109.	151.	213.	253.	216.	153.	110.
		COND. LOSS:	402.	402.	402.	402.	402.	402.	402.	402.
		NET GAIN :	-297.	-293.	-251.	-189.	-149.	-187.	-249.	-292.
MAR.	692.	INC. RADN :	247.	296.	408.	494.	525.	482.	393.	286.
		SOLAR GAIN:	200.	238.	335.	408.	428.	398.	322.	230.
		COND. LOSS:	383.	383.	383.	383.	383.	383.	383.	383.
		NET GAIN :	-182.	-145.	-48.	25.	45.	15.	-61.	-153.
APR.	445.	INC. RADN :	198.	272.	379.	423.	398.	380.	331.	248.
		SOLAR GAIN:	160.	219.	312.	348.	317.	310.	271.	199.
		COND. LOSS:	258.	258.	258.	258.	258.	258.	258.	258.
		NET GAIN :	-98.	-39.	54.	90.	59.	52.	13.	-59.
MAY	178.	INC. RADN :	165.	248.	339.	340.	295.	350.	354.	259.
		SOLAR GAIN:	128.	201.	280.	275.	223.	283.	292.	210.
		COND. LOSS:	122.	122.	122.	122.	122.	122.	122.	122.
		NET GAIN :	5.	79.	158.	152.	100.	161.	170.	88.
JUNE	57.	INC. RADN :	202.	288.	376.	354.	289.	365.	398.	308.
		SOLAR GAIN:	156.	234.	310.	283.	214.	291.	329.	252.
		COND. LOSS:	51.	51.	51.	51.	51.	51.	51.	51.
		NET GAIN :	105.	183.	260.	233.	163.	240.	278.	201.
JULY	31.	INC. RADN :	184.	273.	361.	345.	281.	335.	351.	269.
		SOLAR GAIN:	143.	222.	298.	278.	211.	269.	290.	219.
		COND. LOSS:	36.	36.	36.	36.	36.	36.	36.	36.
		NET GAIN :	107.	186.	262.	242.	174.	233.	254.	183.
AUG.	64.	INC. RADN :	140.	227.	332.	356.	322.	354.	332.	228.
		SOLAR GAIN:	110.	182.	275.	292.	248.	289.	275.	183.
		COND. LOSS:	58.	58.	58.	58.	58.	58.	58.	58.
		NET GAIN :	52.	125.	217.	234.	190.	232.	217.	125.
TOTALS**	4441.	INC. RADN :	877.	1031.	1561.	2174.	2481.	2125.	1504.	999.
		SOLAR GAIN:	711.	825.	1271.	1798.	2060.	1756.	1221.	800.
		COND. LOSS:	2486.	2486.	2486.	2486.	2486.	2486.	2486.	2486.
		NET GAIN :	-1775.	-1661.	-1216.	-688.	-426.	-730.	-1265.	-1686.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 11 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

OTTAWA 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	125.	INC. RADN :	89.	130.	215.	279.	296.	279.	219.	134.
		SOLAR GAIN:	64.	91.	156.	205.	210.	205.	159.	94.
		COND. LOSS:	50.	50.	50.	50.	50.	50.	50.	50.
		NET GAIN :	13.	40.	106.	154.	160.	155.	109.	44.
OCT.	204.	INC. RADN :	65.	82.	173.	282.	346.	280.	172.	83.
		SOLAR GAIN:	47.	56.	124.	209.	259.	207.	123.	56.
		COND. LOSS:	89.	89.	89.	89.	89.	89.	89.	89.
		NET GAIN :	-42.	-33.	35.	120.	170.	118.	35.	-32.
NOV.	454.	INC. RADN :	41.	45.	88.	163.	213.	170.	95.	46.
		SOLAR GAIN:	30.	31.	62.	120.	162.	127.	67.	32.
		COND. LOSS:	136.	136.	136.	136.	136.	136.	136.	136.
		NET GAIN :	-106.	-105.	-73.	-15.	27.	-9.	-68.	-104.
DEC.	881.	INC. RADN :	87.	88.	144.	253.	319.	251.	143.	88.
		SOLAR GAIN:	62.	62.	101.	186.	242.	184.	101.	62.
		COND. LOSS:	237.	237.	237.	237.	238.	237.	237.	237.
		NET GAIN :	-175.	-175.	-136.	-52.	4.	-53.	-137.	-175.
JAN.	973.	INC. RADN :	109.	112.	181.	302.	378.	302.	181.	112.
		SOLAR GAIN:	78.	79.	128.	222.	285.	222.	128.	79.
		COND. LOSS:	257.	257.	258.	258.	258.	258.	258.	257.
		NET GAIN :	-179.	-178.	-129.	-36.	28.	-36.	-130.	-178.
FEB.	732.	INC. RADN :	130.	136.	186.	258.	303.	261.	189.	137.
		SOLAR GAIN:	93.	96.	133.	189.	225.	191.	135.	97.
		COND. LOSS:	199.	199.	199.	199.	199.	199.	199.	199.
		NET GAIN :	-106.	-103.	-66.	-10.	26.	-8.	-64.	-102.
MAR.	692.	INC. RADN :	247.	296.	408.	494.	525.	482.	393.	286.
		SOLAR GAIN:	177.	209.	297.	362.	378.	353.	285.	202.
		COND. LOSS:	192.	192.	193.	193.	193.	193.	192.	192.
		NET GAIN :	-15.	17.	104.	169.	185.	160.	92.	10.
APR.	445.	INC. RADN :	198.	272.	379.	423.	398.	380.	331.	248.
		SOLAR GAIN:	141.	192.	277.	308.	278.	274.	240.	175.
		COND. LOSS:	133.	133.	133.	133.	133.	133.	133.	133.
		NET GAIN :	8.	60.	144.	175.	145.	141.	107.	43.
MAY	178.	INC. RADN :	165.	248.	339.	340.	295.	350.	354.	259.
		SOLAR GAIN:	111.	178.	248.	242.	191.	249.	259.	186.
		COND. LOSS:	65.	65.	65.	65.	65.	65.	65.	65.
		NET GAIN :	46.	113.	184.	177.	127.	185.	195.	121.
JUNE	57.	INC. RADN :	202.	288.	376.	354.	289.	365.	398.	308.
		SOLAR GAIN:	135.	206.	275.	248.	182.	254.	292.	222.
		COND. LOSS:	27.	27.	27.	27.	27.	27.	27.	27.
		NET GAIN :	108.	179.	248.	221.	155.	227.	264.	195.
JULY	31.	INC. RADN :	184.	273.	361.	345.	281.	335.	351.	269.
		SOLAR GAIN:	124.	196.	265.	244.	180.	236.	257.	193.
		COND. LOSS:	20.	20.	20.	20.	20.	20.	20.	20.
		NET GAIN :	104.	176.	245.	224.	160.	217.	237.	173.
AUG.	64.	INC. RADN :	140.	227.	332.	356.	322.	354.	332.	228.
		SOLAR GAIN:	96.	161.	244.	258.	215.	256.	244.	161.
		COND. LOSS:	31.	31.	31.	31.	31.	31.	31.	31.
		NET GAIN :	65.	130.	213.	227.	184.	225.	213.	130.
**										
TOTALS	4441.	INC. RADN :	877.	1031.	1561.	2174.	2481.	2125.	1504.	999.
		SOLAR GAIN:	627.	726.	1123.	1596.	1830.	1558.	1078.	704.
		COND. LOSS:	1243.	1243.	1244.	1244.	1245.	1244.	1243.	1243.
		NET GAIN :	-616.	-517.	-121.	351.	585.	314.	-165.	-539.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 12 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

OTTAWA 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	125.	INC. RADN :	89.	130.	215.	279.	296.	279.	219.	134.
		SOLAR GAIN:	58.	83.	143.	188.	193.	188.	146.	86.
		COND. LOSS:	34.	34.	34.	34.	34.	34.	34.	34.
		NET GAIN :	25.	49.	109.	154.	159.	154.	112.	52.
OCT.	264.	INC. RADN :	65.	82.	173.	282.	346.	280.	172.	83.
		SOLAR GAIN:	43.	50.	113.	192.	239.	190.	113.	51.
		COND. LOSS:	59.	59.	59.	59.	59.	59.	59.	59.
		NET GAIN :	-16.	-9.	54.	132.	179.	131.	54.	-8.
NOV.	454.	INC. RADN :	41.	45.	88.	163.	213.	170.	95.	46.
		SOLAR GAIN:	27.	28.	57.	110.	149.	116.	61.	29.
		COND. LOSS:	90.	90.	90.	90.	90.	90.	90.	90.
		NET GAIN :	-63.	-62.	-33.	20.	59.	26.	-29.	-62.
DEC.	881.	INC. RADN :	87.	88.	144.	253.	319.	251.	143.	88.
		SOLAR GAIN:	57.	57.	93.	171.	223.	169.	92.	57.
		COND. LOSS:	156.	156.	156.	156.	156.	156.	156.	156.
		NET GAIN :	-99.	-98.	-63.	15.	67.	13.	-64.	-99.
JAN.	973.	INC. RADN :	109.	112.	181.	302.	378.	302.	181.	112.
		SOLAR GAIN:	72.	72.	117.	203.	263.	204.	117.	72.
		COND. LOSS:	168.	168.	168.	169.	169.	169.	168.	168.
		NET GAIN :	-97.	-96.	-51.	35.	94.	35.	-52.	-96.
FEB.	732.	INC. RADN :	130.	136.	186.	258.	303.	261.	189.	137.
		SOLAR GAIN:	85.	88.	122.	173.	207.	176.	124.	89.
		COND. LOSS:	131.	131.	131.	131.	131.	131.	131.	131.
		NET GAIN :	-46.	-43.	-9.	42.	76.	44.	-7.	-42.
MAR.	692.	INC. RADN :	247.	296.	408.	494.	525.	482.	393.	286.
		SOLAR GAIN:	162.	191.	272.	332.	346.	324.	261.	185.
		COND. LOSS:	128.	128.	128.	128.	128.	128.	128.	128.
		NET GAIN :	34.	63.	144.	204.	218.	195.	133.	57.
APR.	445.	INC. RADN :	198.	272.	379.	423.	398.	380.	331.	248.
		SOLAR GAIN:	129.	176.	254.	283.	254.	251.	220.	160.
		COND. LOSS:	89.	89.	89.	89.	89.	89.	89.	89.
		NET GAIN :	40.	87.	165.	194.	165.	162.	131.	72.
MAY	178.	INC. RADN :	165.	248.	339.	340.	295.	350.	354.	259.
		SOLAR GAIN:	101.	162.	228.	222.	172.	228.	238.	170.
		COND. LOSS:	43.	43.	43.	43.	43.	43.	43.	43.
		NET GAIN :	57.	119.	184.	178.	129.	185.	194.	127.
JUNE	57.	INC. RADN :	202.	288.	376.	354.	289.	365.	398.	308.
		SOLAR GAIN:	123.	189.	252.	227.	163.	232.	267.	203.
		COND. LOSS:	19.	19.	19.	19.	19.	19.	19.	19.
		NET GAIN :	104.	170.	234.	208.	144.	214.	249.	185.
JULY	31.	INC. RADN :	184.	273.	361.	345.	281.	335.	351.	269.
		SOLAR GAIN:	113.	179.	243.	223.	162.	216.	236.	177.
		COND. LOSS:	13.	13.	13.	13.	13.	13.	13.	13.
		NET GAIN :	99.	166.	229.	210.	149.	203.	222.	163.
AUG.	64.	INC. RADN :	140.	227.	332.	356.	322.	354.	332.	228.
		SOLAR GAIN:	87.	147.	224.	237.	195.	235.	223.	147.
		COND. LOSS:	21.	21.	21.	21.	21.	21.	21.	21.
		NET GAIN :	66.	126.	203.	216.	174.	214.	203.	127.
TOTALS	4441.	INC. RADN :	877.	1031.	1561.	2174.	2481.	2125.	1504.	999.
		SOLAR GAIN:	574.	663.	1028.	1464.	1681.	1429.	987.	643.
		COND. LOSS:	820.	821.	822.	823.	823.	822.	821.	821.
		NET GAIN :	-246.	-158.	206.	641.	857.	607.	166.	-178.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 13 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

FREDERICTON 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	171.	INC. RADN :	84.	119.	204.	269.	285.	256.	195.	120.
		SOLAR GAIN:	68.	95.	167.	223.	232.	211.	160.	96.
		COND. LOSS:	119.	119.	119.	119.	119.	119.	119.	119.
		NET GAIN :	-51.	-24.	48.	104.	113.	92.	41.	-23.
OCT.	299.	INC. RADN :	63.	83.	184.	298.	360.	287.	175.	82.
		SOLAR GAIN:	51.	65.	150.	249.	303.	239.	143.	63.
		COND. LOSS:	184.	184.	184.	184.	184.	184.	184.	184.
		NET GAIN :	-133.	-120.	-35.	65.	118.	55.	-42.	-121.
NOV.	485.	INC. RADN :	47.	52.	120.	226.	282.	210.	107.	51.
		SOLAR GAIN:	38.	41.	96.	189.	241.	174.	86.	40.
		COND. LOSS:	267.	267.	267.	267.	267.	267.	267.	267.
		NET GAIN :	-229.	-226.	-171.	-78.	-26.	-93.	-181.	-227.
DEC.	870.	INC. RADN :	81.	82.	142.	255.	321.	249.	137.	82.
		SOLAR GAIN:	65.	66.	114.	212.	273.	206.	110.	66.
		COND. LOSS:	467.	467.	467.	467.	467.	467.	467.	467.
		NET GAIN :	-402.	-402.	-354.	-256.	-194.	-261.	-358.	-402.
JAN.	926.	INC. RADN :	102.	105.	175.	305.	378.	296.	169.	105.
		SOLAR GAIN:	83.	84.	141.	253.	321.	245.	136.	84.
		COND. LOSS:	482.	482.	482.	482.	482.	482.	482.	482.
		NET GAIN :	-400.	-399.	-342.	-229.	-162.	-238.	-347.	-398.
FEB.	729.	INC. RADN :	132.	143.	218.	318.	386.	328.	226.	145.
		SOLAR GAIN:	108.	114.	177.	263.	323.	272.	183.	115.
		COND. LOSS:	389.	389.	389.	389.	389.	389.	389.	389.
		NET GAIN :	-281.	-274.	-212.	-125.	-65.	-117.	-206.	-274.
MAR.	614.	INC. RADN :	225.	259.	347.	425.	457.	413.	334.	252.
		SOLAR GAIN:	183.	208.	283.	349.	373.	340.	271.	203.
		COND. LOSS:	350.	350.	350.	350.	350.	350.	350.	350.
		NET GAIN :	-167.	-142.	-67.	-1.	23.	-10.	-79.	-148.
APR.	424.	INC. RADN :	185.	224.	289.	325.	321.	310.	275.	219.
		SOLAR GAIN:	150.	180.	236.	266.	257.	253.	224.	177.
		COND. LOSS:	251.	251.	251.	251.	251.	251.	251.	251.
		NET GAIN :	-102.	-71.	-15.	15.	6.	1.	-27.	-75.
MAY	212.	INC. RADN :	159.	221.	296.	304.	274.	319.	320.	240.
		SOLAR GAIN:	124.	179.	244.	246.	209.	257.	264.	195.
		COND. LOSS:	141.	141.	141.	141.	141.	141.	141.	141.
		NET GAIN :	-17.	37.	102.	104.	67.	116.	123.	53.
JUNE	109.	INC. RADN :	195.	287.	373.	348.	280.	338.	361.	280.
		SOLAR GAIN:	151.	234.	308.	279.	208.	270.	297.	228.
		COND. LOSS:	82.	82.	82.	82.	82.	82.	82.	82.
		NET GAIN :	69.	151.	226.	197.	126.	188.	215.	146.
JULY	42.	INC. RADN :	174.	254.	342.	343.	292.	328.	330.	251.
		SOLAR GAIN:	136.	206.	281.	276.	220.	263.	271.	203.
		COND. LOSS:	40.	40.	40.	40.	40.	40.	40.	40.
		NET GAIN :	95.	165.	241.	235.	180.	223.	230.	163.
AUG.	52.	INC. RADN :	141.	194.	275.	312.	314.	347.	318.	221.
		SOLAR GAIN:	111.	156.	225.	254.	245.	283.	262.	178.
		COND. LOSS:	48.	48.	48.	48.	48.	48.	48.	48.
		NET GAIN :	62.	108.	177.	205.	197.	234.	214.	129.
TOTALS**	4347.	INC. RADN :	835.	948.	1474.	2152.	2505.	2093.	1424.	935.
		SOLAR GAIN:	678.	758.	1197.	1783.	2092.	1729.	1153.	748.
		COND. LOSS:	2392.	2392.	2392.	2392.	2392.	2392.	2392.	2392.
		NET GAIN :	-1714.	-1634.	-1195.	-609.	-300.	-663.	-1239.	-1644.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 14 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

FREDERICTON 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	171.	INC. RADN :	84.	119.	204.	269.	285.	256.	195.	120.
		SOLAR GAIN:	60.	83.	148.	198.	205.	187.	141.	84.
		COND. LOSS:	63.	64.	64.	64.	64.	64.	64.	63.
		NET GAIN :	-3.	19.	85.	134.	141.	124.	78.	20.
OCT.	299.	INC. RADN :	63.	83.	184.	298.	360.	287.	175.	82.
		SOLAR GAIN:	45.	56.	132.	222.	270.	213.	126.	55.
		COND. LOSS:	96.	96.	97.	97.	97.	97.	97.	96.
		NET GAIN :	-51.	-40.	36.	125.	173.	116.	30.	-41.
NOV.	485.	INC. RADN :	47.	52.	120.	226.	282.	210.	107.	51.
		SOLAR GAIN:	34.	36.	85.	169.	216.	155.	76.	35.
		COND. LOSS:	139.	139.	140.	140.	140.	140.	139.	139.
		NET GAIN :	-106.	-104.	-55.	29.	77.	15.	-64.	-104.
DEC.	870.	INC. RADN :	81.	82.	142.	255.	321.	249.	137.	82.
		SOLAR GAIN:	58.	58.	100.	188.	244.	183.	96.	58.
		COND. LOSS:	232.	232.	232.	232.	233.	232.	232.	232.
		NET GAIN :	-174.	-174.	-132.	-44.	12.	-49.	-136.	-174.
JAN.	926.	INC. RADN :	102.	105.	175.	305.	378.	296.	169.	105.
		SOLAR GAIN:	73.	74.	124.	225.	287.	217.	119.	74.
		COND. LOSS:	242.	242.	242.	242.	242.	242.	242.	242.
		NET GAIN :	-169.	-168.	-118.	-18.	44.	-25.	-123.	-168.
FEB.	729.	INC. RADN :	132.	143.	218.	318.	386.	328.	226.	145.
		SOLAR GAIN:	95.	100.	156.	234.	288.	242.	162.	101.
		COND. LOSS:	195.	195.	195.	196.	196.	196.	195.	195.
		NET GAIN :	-100.	-95.	-39.	38.	92.	46.	-34.	-94.
MAR.	614.	INC. RADN :	225.	259.	347.	425.	457.	413.	334.	252.
		SOLAR GAIN:	162.	183.	250.	310.	330.	301.	240.	178.
		COND. LOSS:	176.	176.	176.	176.	176.	176.	176.	176.
		NET GAIN :	-14.	8.	75.	134.	154.	125.	64.	3.
APR.	424.	INC. RADN :	185.	224.	289.	325.	321.	310.	275.	219.
		SOLAR GAIN:	132.	159.	209.	235.	226.	223.	198.	156.
		COND. LOSS:	129.	129.	129.	129.	129.	129.	129.	129.
		NET GAIN :	3.	30.	80.	107.	97.	95.	70.	27.
MAY	212.	INC. RADN :	159.	221.	296.	304.	274.	319.	320.	240.
		SOLAR GAIN:	108.	158.	216.	217.	180.	227.	234.	172.
		COND. LOSS:	75.	75.	75.	75.	75.	75.	75.	75.
		NET GAIN :	34.	83.	141.	142.	106.	152.	160.	97.
JUNE	109.	INC. RADN :	195.	287.	373.	348.	280.	338.	361.	280.
		SOLAR GAIN:	132.	206.	273.	244.	177.	236.	263.	201.
		COND. LOSS:	44.	44.	44.	44.	44.	44.	44.	44.
		NET GAIN :	88.	162.	230.	201.	134.	193.	220.	158.
JULY	42.	INC. RADN :	174.	254.	342.	343.	292.	328.	330.	251.
		SOLAR GAIN:	118.	181.	249.	242.	189.	231.	240.	179.
		COND. LOSS:	22.	22.	22.	22.	22.	22.	22.	22.
		NET GAIN :	96.	159.	227.	220.	167.	209.	218.	157.
AUG.	52.	INC. RADN :	141.	194.	275.	312.	314.	347.	318.	221.
		SOLAR GAIN:	97.	137.	199.	224.	213.	250.	232.	157.
		COND. LOSS:	26.	26.	26.	26.	26.	26.	26.	26.
		NET GAIN :	71.	111.	173.	198.	188.	224.	206.	131.
TOTALS**	4347.	INC. RADN :	835.	948.	1474.	2152.	2505.	2093.	1424.	935.
		SOLAR GAIN:	598.	666.	1056.	1583.	1861.	1534.	1017.	658.
		COND. LOSS:	1210.	1210.	1210.	1211.	1212.	1211.	1210.	1210.
		NET GAIN :	-611.	-544.	-154.	371.	650.	323.	-193.	-552.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 15 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

FREDERICTON 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	171.	INC. RADN :	84.	119.	204.	269.	285.	256.	195.	120.
		SOLAR GAIN:	55.	75.	136.	182.	188.	172.	129.	77.
		COND. LOSS:	43.	43.	43.	43.	43.	43.	43.	43.
		NET GAIN :	12.	33.	93.	139.	145.	129.	87.	34.
OCT.	299.	INC. RADN :	63.	83.	184.	298.	360.	287.	175.	82.
		SOLAR GAIN:	41.	51.	121.	204.	248.	195.	116.	50.
		COND. LOSS:	65.	65.	65.	65.	65.	65.	65.	65.
		NET GAIN :	-23.	-14.	57.	139.	183.	131.	51.	-15.
NOV.	485.	INC. RADN :	47.	52.	120.	226.	282.	210.	107.	51.
		SOLAR GAIN:	31.	32.	77.	155.	199.	142.	69.	32.
		COND. LOSS:	94.	94.	94.	94.	94.	94.	94.	94.
		NET GAIN :	-63.	-61.	-16.	61.	105.	48.	-25.	-61.
DEC.	870.	INC. RADN :	81.	82.	142.	255.	321.	249.	137.	82.
		SOLAR GAIN:	53.	53.	91.	173.	225.	168.	88.	53.
		COND. LOSS:	153.	153.	153.	153.	153.	153.	153.	153.
		NET GAIN :	-100.	-100.	-62.	19.	72.	15.	-65.	-100.
JAN.	926.	INC. RADN :	102.	105.	175.	305.	378.	296.	169.	105.
		SOLAR GAIN:	67.	68.	113.	206.	264.	199.	109.	68.
		COND. LOSS:	159.	159.	160.	160.	160.	160.	160.	159.
		NET GAIN :	-93.	-92.	-46.	46.	104.	39.	-51.	-92.
FEB.	729.	INC. RADN :	132.	143.	218.	318.	386.	328.	226.	145.
		SOLAR GAIN:	87.	92.	143.	215.	265.	222.	148.	92.
		COND. LOSS:	129.	129.	129.	130.	130.	130.	129.	129.
		NET GAIN :	-42.	-38.	14.	85.	135.	92.	19.	-37.
MAR.	614.	INC. RADN :	225.	259.	347.	425.	457.	413.	334.	252.
		SOLAR GAIN:	148.	168.	229.	284.	303.	276.	219.	163.
		COND. LOSS:	116.	117.	117.	117.	117.	117.	117.	117.
		NET GAIN :	31.	51.	113.	167.	186.	159.	103.	46.
APR.	424.	INC. RADN :	185.	224.	289.	325.	321.	310.	275.	219.
		SOLAR GAIN:	121.	145.	191.	216.	206.	205.	182.	142.
		COND. LOSS:	86.	86.	86.	86.	86.	86.	86.	86.
		NET GAIN :	35.	59.	105.	130.	120.	119.	96.	57.
MAY	212.	INC. RADN :	159.	221.	296.	304.	274.	319.	320.	240.
		SOLAR GAIN:	98.	144.	198.	198.	163.	208.	215.	157.
		COND. LOSS:	50.	50.	50.	50.	50.	50.	50.	50.
		NET GAIN :	48.	94.	148.	148.	113.	158.	165.	107.
JUNE	109.	INC. RADN :	195.	287.	373.	348.	280.	338.	361.	280.
		SOLAR GAIN:	120.	188.	250.	224.	159.	216.	242.	184.
		COND. LOSS:	29.	29.	29.	29.	29.	29.	29.	29.
		NET GAIN :	90.	159.	221.	194.	130.	187.	212.	155.
JULY	42.	INC. RADN :	174.	254.	342.	343.	292.	328.	330.	251.
		SOLAR GAIN:	107.	166.	228.	222.	170.	211.	220.	164.
		COND. LOSS:	15.	15.	15.	15.	15.	15.	15.	15.
		NET GAIN :	92.	151.	213.	207.	155.	196.	205.	149.
AUG.	52.	INC. RADN :	141.	194.	275.	312.	314.	347.	318.	221.
		SOLAR GAIN:	88.	125.	183.	205.	194.	229.	213.	143.
		COND. LOSS:	17.	17.	17.	17.	17.	17.	17.	17.
		NET GAIN :	71.	108.	165.	188.	177.	212.	196.	126.
TOTALS**	4347.	INC. RADN :	835.	948.	1474.	2152.	2505.	2093.	1424.	935.
		SOLAR GAIN:	548.	608.	967.	1452.	1711.	1408.	931.	601.
		COND. LOSS:	802.	802.	803.	804.	805.	804.	803.	802.
		NET GAIN :	-254.	-194.	164.	648.	906.	604.	128.	-202.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 16 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

TORONTO 1970/1971 SINGLE GLAZING

MONTH	DEC.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	104.	INC. RADN :	94.	145.	234.	291.	307.	297.	239.	144.
		SOLAR GAIN:	77.	115.	194.	241.	246.	246.	196.	114.
		COND. LOSS:	81.	81.	81.	81.	81.	81.	81.	81.
		NET GAIN :	-4.	34.	113.	160.	165.	166.	115.	34.
OCT.	240.	INC. RADN :	67.	80.	147.	223.	263.	216.	143.	81.
		SOLAR GAIN:	54.	63.	120.	186.	220.	179.	116.	64.
		COND. LOSS:	158.	158.	158.	158.	158.	158.	158.	158.
		NET GAIN :	-103.	-94.	-38.	28.	63.	22.	-42.	-94.
NOV.	408.	INC. RADN :	41.	46.	92.	163.	207.	162.	92.	46.
		SOLAR GAIN:	34.	36.	74.	136.	176.	135.	74.	36.
		COND. LOSS:	247.	247.	247.	247.	247.	247.	247.	247.
		NET GAIN :	-214.	-211.	-174.	-111.	-72.	-112.	-174.	-211.
DEC.	716.	INC. RADN :	84.	85.	115.	177.	222.	188.	123.	85.
		SOLAR GAIN:	69.	69.	92.	145.	187.	156.	99.	69.
		COND. LOSS:	396.	396.	396.	396.	396.	396.	396.	396.
		NET GAIN :	-328.	-327.	-304.	-251.	-209.	-240.	-298.	-327.
JAN.	829.	INC. RADN :	121.	124.	188.	308.	378.	304.	185.	124.
		SOLAR GAIN:	98.	100.	151.	254.	319.	250.	148.	99.
		COND. LOSS:	463.	463.	463.	463.	463.	463.	463.	463.
		NET GAIN :	-365.	-363.	-312.	-208.	-144.	-212.	-315.	-363.
FEB.	635.	INC. RADN :	131.	135.	173.	236.	278.	244.	180.	136.
		SOLAR GAIN:	106.	109.	140.	193.	231.	201.	145.	110.
		COND. LOSS:	365.	365.	365.	365.	365.	365.	365.	365.
		NET GAIN :	-259.	-256.	-225.	-172.	-134.	-164.	-219.	-255.
MAR.	653.	INC. RADN :	193.	223.	311.	391.	432.	401.	324.	231.
		SOLAR GAIN:	157.	178.	253.	322.	352.	330.	264.	185.
		COND. LOSS:	369.	369.	369.	369.	369.	369.	369.	369.
		NET GAIN :	-212.	-190.	-116.	-47.	-16.	-39.	-105.	-184.
APR.	404.	INC. RADN :	118.	203.	325.	373.	343.	328.	277.	180.
		SOLAR GAIN:	94.	161.	268.	306.	268.	267.	227.	143.
		COND. LOSS:	246.	246.	246.	246.	246.	246.	246.	246.
		NET GAIN :	-151.	-84.	23.	61.	23.	22.	-19.	-103.
MAY	207.	INC. RADN :	171.	274.	377.	371.	307.	360.	361.	264.
		SOLAR GAIN:	131.	222.	311.	299.	230.	289.	297.	213.
		COND. LOSS:	141.	141.	141.	141.	141.	141.	141.	141.
		NET GAIN :	-9.	81.	170.	158.	89.	148.	156.	72.
JUNE	63.	INC. RADN :	200.	298.	385.	353.	275.	343.	373.	292.
		SOLAR GAIN:	154.	243.	318.	281.	201.	272.	307.	237.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	99.	188.	263.	226.	146.	218.	252.	182.
JULY	38.	INC. RADN :	185.	277.	367.	350.	283.	346.	366.	280.
		SOLAR GAIN:	143.	225.	303.	281.	209.	276.	302.	228.
		COND. LOSS:	39.	39.	39.	39.	39.	39.	39.	39.
		NET GAIN :	103.	186.	263.	241.	170.	237.	262.	188.
AUG.	50.	INC. RADN :	147.	256.	386.	408.	354.	383.	358.	242.
		SOLAR GAIN:	114.	206.	319.	334.	270.	311.	295.	195.
		COND. LOSS:	49.	49.	49.	49.	49.	49.	49.	49.
		NET GAIN :	65.	157.	270.	285.	221.	262.	246.	146.
TOTALS**	3885.	INC. RADN :	756.	896.	1351.	1869.	2123.	1843.	1323.	883.
		SOLAR GAIN:	612.	716.	1098.	1542.	1754.	1519.	1073.	706.
		COND. LOSS:	2243.	2243.	2243.	2243.	2243.	2243.	2243.	2243.
		NET GAIN :	-1631.	-1527.	-1145.	-701.	-489.	-724.	-1170.	-1537.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 17 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

TORONTO 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	104.	INC. RADN :	94.	145.	234.	291.	307.	297.	239.	144.
		SOLAR GAIN:	68.	101.	172.	214.	216.	219.	174.	100.
		COND. LOSS:	43.	43.	43.	43.	43.	43.	43.	43.
		NET GAIN :	25.	58.	128.	170.	173.	175.	131.	57.
OCT.	240.	INC. RADN :	67.	80.	147.	223.	263.	216.	143.	81.
		SOLAR GAIN:	48.	55.	106.	165.	196.	159.	103.	56.
		COND. LOSS:	83.	83.	83.	83.	83.	83.	83.	83.
		NET GAIN :	-35.	-28.	23.	82.	113.	76.	20.	-27.
NOV.	408.	INC. RADN :	41.	46.	92.	163.	207.	162.	92.	46.
		SOLAR GAIN:	30.	31.	65.	121.	157.	120.	65.	32.
		COND. LOSS:	126.	126.	126.	126.	126.	126.	126.	126.
		NET GAIN :	-96.	-94.	-61.	-5.	32.	-6.	-61.	-94.
DEC.	716.	INC. RADN :	84.	85.	115.	177.	222.	188.	123.	85.
		SOLAR GAIN:	61.	61.	81.	129.	167.	138.	87.	61.
		COND. LOSS:	198.	198.	198.	198.	198.	198.	198.	198.
		NET GAIN :	-137.	-137.	-117.	-69.	-31.	-60.	-111.	-137.
JAN.	829.	INC. RADN :	121.	124.	188.	308.	378.	304.	185.	124.
		SOLAR GAIN:	86.	88.	133.	226.	285.	222.	130.	87.
		COND. LOSS:	227.	227.	227.	227.	227.	227.	227.	227.
		NET GAIN :	-140.	-139.	-94.	-1.	58.	-5.	-97.	-139.
FEB.	635.	INC. RADN :	131.	135.	173.	236.	278.	244.	180.	136.
		SOLAR GAIN:	94.	96.	123.	171.	206.	178.	128.	96.
		COND. LOSS:	179.	179.	179.	179.	179.	179.	179.	179.
		NET GAIN :	-85.	-83.	-56.	-8.	26.	-1.	-51.	-83.
MAR.	653.	INC. RADN :	193.	223.	311.	391.	432.	401.	324.	231.
		SOLAR GAIN:	138.	157.	224.	285.	312.	293.	234.	163.
		COND. LOSS:	184.	184.	185.	185.	185.	185.	185.	184.
		NET GAIN :	-46.	-28.	39.	100.	127.	108.	49.	-22.
APR.	404.	INC. RADN :	118.	203.	325.	373.	343.	328.	277.	180.
		SOLAR GAIN:	83.	142.	238.	272.	234.	237.	201.	125.
		COND. LOSS:	125.	125.	125.	125.	125.	125.	125.	125.
		NET GAIN :	-42.	17.	113.	147.	109.	112.	76.	1.
MAY	207.	INC. RADN :	171.	274.	377.	371.	307.	360.	361.	264.
		SOLAR GAIN:	114.	196.	275.	263.	196.	254.	263.	188.
		COND. LOSS:	74.	74.	74.	74.	74.	74.	74.	74.
		NET GAIN :	41.	122.	202.	189.	123.	181.	190.	114.
JUNE	63.	INC. RADN :	200.	298.	385.	353.	275.	343.	373.	292.
		SOLAR GAIN:	133.	214.	282.	246.	171.	238.	272.	209.
		COND. LOSS:	30.	30.	30.	30.	30.	30.	30.	29.
		NET GAIN :	104.	185.	252.	216.	141.	209.	243.	180.
JULY	38.	INC. RADN :	185.	277.	367.	350.	283.	346.	366.	280.
		SOLAR GAIN:	124.	198.	268.	246.	178.	242.	267.	201.
		COND. LOSS:	21.	21.	21.	21.	21.	21.	21.	21.
		NET GAIN :	103.	177.	247.	225.	157.	221.	246.	180.
AUG.	50.	INC. RADN :	147.	256.	386.	408.	354.	383.	358.	242.
		SOLAR GAIN:	100.	181.	283.	295.	233.	275.	262.	171.
		COND. LOSS:	26.	26.	26.	26.	26.	26.	26.	26.
		NET GAIN :	73.	155.	257.	269.	207.	249.	236.	145.
TOTALS**	3885.	INC. RADN :	756.	896.	1351.	1869.	2123.	1843.	1323.	883.
		SOLAR GAIN:	540.	629.	970.	1368.	1556.	1347.	947.	620.
		COND. LOSS:	1121.	1121.	1122.	1122.	1123.	1122.	1122.	1121.
		NET GAIN :	-581.	-492.	-152.	246.	434.	225.	-175.	-501.

* BASE 19 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 18

NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

TORONTO

1970/1971

TRIPLE GLAZING

MONTH	DEG. DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	104.	INC. RADN :	94.	145.	234.	291.	307.	297.	233.	144.
		SOLAR GAIN:	62.	92.	157.	196.	198.	201.	159.	92.
		COND. LOSS:	29.	29.	29.	29.	29.	29.	29.	29.
		NET GAIN :	33.	63.	128.	167.	169.	172.	130.	63.
OCT.	240.	INC. RADN :	67.	80.	147.	223.	263.	216.	143.	81.
		SOLAR GAIN:	44.	50.	97.	151.	180.	146.	94.	51.
		COND. LOSS:	55.	55.	55.	56.	56.	55.	55.	55.
		NET GAIN :	-11.	-5.	42.	96.	125.	91.	38.	-4.
NOV.	408.	INC. RADN :	41.	46.	92.	163.	207.	162.	92.	46.
		SOLAR GAIN:	27.	29.	59.	111.	145.	110.	59.	29.
		COND. LOSS:	83.	83.	83.	84.	84.	84.	83.	83.
		NET GAIN :	-56.	-55.	-24.	27.	61.	26.	-24.	-55.
DEC.	716.	INC. RADN :	84.	85.	115.	177.	222.	188.	123.	85.
		SOLAR GAIN:	55.	56.	74.	118.	154.	127.	79.	56.
		COND. LOSS:	131.	131.	131.	131.	131.	131.	131.	131.
		NET GAIN :	-75.	-75.	-57.	-13.	23.	-4.	-52.	-75.
JAN.	829.	INC. RADN :	121.	124.	188.	308.	378.	304.	185.	124.
		SOLAR GAIN:	79.	80.	121.	207.	262.	204.	119.	80.
		COND. LOSS:	149.	149.	149.	149.	149.	149.	149.	149.
		NET GAIN :	-69.	-68.	-27.	58.	113.	55.	-30.	-69.
FEB.	635.	INC. RADN :	131.	135.	173.	236.	278.	244.	180.	136.
		SOLAR GAIN:	86.	88.	113.	157.	189.	163.	117.	83.
		COND. LOSS:	118.	118.	118.	118.	118.	118.	118.	118.
		NET GAIN :	-32.	-30.	-5.	39.	71.	45.	-1.	-30.
MAR.	653.	INC. RADN :	193.	223.	311.	391.	432.	401.	324.	231.
		SOLAR GAIN:	127.	143.	205.	261.	286.	269.	214.	149.
		COND. LOSS:	122.	122.	123.	123.	123.	123.	123.	122.
		NET GAIN :	4.	21.	83.	139.	163.	146.	92.	26.
APR.	404.	INC. RADN :	118.	203.	325.	373.	343.	328.	277.	190.
		SOLAR GAIN:	76.	129.	218.	250.	213.	217.	184.	114.
		COND. LOSS:	83.	83.	83.	83.	83.	83.	83.	83.
		NET GAIN :	-7.	46.	135.	166.	130.	134.	101.	32.
MAY	207.	INC. RADN :	171.	274.	377.	371.	307.	360.	361.	264.
		SOLAR GAIN:	103.	179.	253.	241.	177.	233.	241.	172.
		COND. LOSS:	49.	49.	49.	49.	49.	49.	49.	49.
		NET GAIN :	54.	130.	203.	191.	127.	184.	192.	123.
JUNE	63.	INC. RADN :	200.	298.	385.	353.	275.	343.	373.	292.
		SOLAR GAIN:	121.	196.	258.	225.	153.	218.	249.	191.
		COND. LOSS:	20.	20.	20.	20.	20.	20.	20.	20.
		NET GAIN :	101.	176.	238.	205.	133.	198.	229.	171.
JULY	38.	INC. RADN :	185.	277.	367.	350.	283.	346.	366.	280.
		SOLAR GAIN:	112.	181.	246.	225.	160.	222.	245.	184.
		COND. LOSS:	14.	14.	14.	14.	14.	14.	14.	14.
		NET GAIN :	98.	167.	232.	211.	146.	207.	231.	170.
AUG.	50.	INC. RADN :	147.	256.	386.	408.	354.	383.	358.	242.
		SOLAR GAIN:	91.	165.	260.	271.	211.	252.	240.	157.
		COND. LOSS:	18.	18.	18.	18.	18.	18.	18.	18.
		NET GAIN :	73.	148.	242.	253.	193.	234.	222.	139.
TOTALS	3885.	INC. RADN :	756.	896.	1351.	1869.	2123.	1843.	1323.	883.
		SOLAR GAIN:	494.	575.	888.	1255.	1429.	1236.	867.	567.
		COND. LOSS:	741.	742.	742.	743.	743.	743.	742.	741.
		NET GAIN :	-247.	-167.	146.	512.	686.	493.	125.	-175.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 19 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

MONTREAL 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	111.	INC. RADN :	100.	148.	243.	311.	311.	257.	186.	122.
		SOLAR GAIN:	81.	117.	199.	258.	253.	210.	151.	97.
		COND. LOSS:	88.	88.	88.	88.	88.	88.	88.	88.
		NET GAIN :	-7.	30.	111.	170.	165.	122.	63.	9.
OCT.	243.	INC. RADN :	72.	97.	196.	290.	303.	210.	125.	76.
		SOLAR GAIN:	58.	75.	161.	244.	254.	172.	100.	61.
		COND. LOSS:	156.	156.	156.	156.	156.	156.	156.	156.
		NET GAIN :	-98.	-81.	5.	83.	98.	16.	-56.	-95.
NOV.	433.	INC. RADN :	36.	40.	79.	144.	189.	151.	84.	40.
		SOLAR GAIN:	30.	31.	64.	120.	161.	126.	68.	31.
		COND. LOSS:	254.	254.	254.	254.	254.	254.	254.	254.
		NET GAIN :	-224.	-223.	-190.	-134.	-93.	-128.	-130.	-223.
DEC.	874.	INC. RADN :	83.	84.	127.	221.	279.	224.	129.	84.
		SOLAR GAIN:	68.	68.	101.	183.	237.	185.	103.	68.
		COND. LOSS:	473.	473.	473.	473.	473.	473.	473.	473.
		NET GAIN :	-405.	-405.	-372.	-290.	-236.	-288.	-370.	-405.
JAN.	957.	INC. RADN :	102.	104.	159.	275.	353.	287.	168.	105.
		SOLAR GAIN:	83.	84.	127.	228.	299.	238.	135.	84.
		COND. LOSS:	511.	511.	511.	511.	511.	511.	511.	511.
		NET GAIN :	-427.	-427.	-384.	-283.	-212.	-273.	-376.	-426.
FEB.	716.	INC. RADN :	120.	126.	181.	260.	305.	256.	179.	127.
		SOLAR GAIN:	97.	101.	147.	215.	256.	211.	145.	102.
		COND. LOSS:	391.	391.	391.	391.	391.	391.	391.	391.
		NET GAIN :	-294.	-290.	-244.	-176.	-135.	-180.	-245.	-289.
MAR.	690.	INC. RADN :	226.	264.	373.	471.	511.	455.	359.	260.
		SOLAR GAIN:	184.	211.	305.	389.	419.	374.	293.	208.
		COND. LOSS:	383.	383.	383.	383.	383.	383.	383.	383.
		NET GAIN :	-199.	-172.	-79.	6.	35.	-9.	-91.	-175.
APR.	448.	INC. RADN :	174.	232.	326.	375.	363.	346.	299.	222.
		SOLAR GAIN:	140.	186.	268.	308.	288.	282.	245.	179.
		COND. LOSS:	255.	255.	255.	255.	255.	255.	255.	255.
		NET GAIN :	-115.	-69.	13.	52.	33.	27.	-11.	-77.
MAY	174.	INC. RADN :	162.	242.	331.	336.	293.	331.	325.	239.
		SOLAR GAIN:	126.	196.	272.	271.	221.	267.	267.	194.
		COND. LOSS:	123.	123.	123.	123.	123.	123.	123.	123.
		NET GAIN :	3.	73.	150.	149.	99.	144.	145.	71.
JUNE	57.	INC. RADN :	197.	299.	393.	368.	297.	351.	366.	279.
		SOLAR GAIN:	152.	243.	324.	294.	219.	279.	300.	226.
		COND. LOSS:	52.	52.	52.	52.	52.	52.	52.	52.
		NET GAIN :	100.	191.	272.	242.	167.	227.	248.	174.
JULY	20.	INC. RADN :	190.	288.	379.	359.	289.	349.	368.	281.
		SOLAR GAIN:	147.	235.	314.	288.	216.	280.	303.	229.
		COND. LOSS:	28.	28.	28.	28.	28.	28.	28.	28.
		NET GAIN :	119.	207.	286.	260.	188.	252.	276.	201.
AUG.	44.	INC. RADN :	147.	240.	352.	376.	331.	353.	328.	229.
		SOLAR GAIN:	114.	193.	291.	308.	256.	287.	270.	184.
		COND. LOSS:	45.	45.	45.	45.	45.	45.	45.	45.
		NET GAIN :	69.	148.	246.	263.	211.	242.	225.	139.
TOTALS**	4360.	INC. RADN :	814.	946.	1442.	2036.	2303.	1929.	1344.	914.
		SOLAR GAIN:	660.	756.	1172.	1686.	1913.	1589.	1088.	733.
		COND. LOSS:	2423.	2423.	2423.	2423.	2423.	2423.	2423.	2423.
		NET GAIN :	-1763.	-1667.	-1251.	-737.	-510.	-834.	-1335.	-1690.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 20 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

MONTREAL 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	111.	INC. RADN :	100.	148.	243.	311.	311.	257.	186.	122.
		SOLAR GAIN:	72.	103.	176.	229.	223.	186.	133.	85.
		COND. LOSS:	47.	47.	47.	47.	47.	47.	47.	47.
		NET GAIN :	25.	56.	129.	182.	176.	139.	86.	38.
OCT.	243.	INC. RADN :	72.	97.	196.	290.	303.	210.	125.	76.
		SOLAR GAIN:	52.	65.	143.	218.	227.	153.	88.	54.
		COND. LOSS:	82.	82.	82.	82.	82.	82.	82.	82.
		NET GAIN :	-31.	-17.	60.	135.	144.	71.	6.	-28.
NOV.	433.	INC. RADN :	36.	40.	79.	144.	189.	151.	84.	40.
		SOLAR GAIN:	26.	28.	56.	106.	144.	112.	60.	27.
		COND. LOSS:	130.	130.	130.	130.	130.	130.	130.	130.
		NET GAIN :	-104.	-102.	-74.	-24.	14.	-18.	-70.	-103.
DEC.	874.	INC. RADN :	83.	84.	127.	221.	279.	224.	129.	84.
		SOLAR GAIN:	60.	60.	89.	162.	212.	165.	90.	60.
		COND. LOSS:	234.	234.	234.	234.	234.	234.	234.	234.
		NET GAIN :	-174.	-174.	-146.	-72.	-22.	-70.	-144.	-174.
JAN.	957.	INC. RADN :	102.	104.	159.	275.	353.	287.	168.	105.
		SOLAR GAIN:	73.	74.	112.	202.	267.	211.	119.	74.
		COND. LOSS:	252.	252.	252.	253.	253.	253.	252.	252.
		NET GAIN :	-179.	-179.	-141.	-51.	14.	-42.	-134.	-178.
FEB.	716.	INC. RADN :	120.	126.	181.	260.	305.	256.	179.	127.
		SOLAR GAIN:	86.	89.	130.	191.	228.	187.	128.	89.
		COND. LOSS:	194.	194.	195.	195.	195.	195.	194.	194.
		NET GAIN :	-109.	-105.	-65.	-4.	33.	-7.	-66.	-105.
MAR.	690.	INC. RADN :	226.	264.	373.	471.	511.	455.	359.	260.
		SOLAR GAIN:	162.	186.	269.	345.	370.	332.	259.	183.
		COND. LOSS:	192.	192.	192.	193.	193.	192.	192.	192.
		NET GAIN :	-30.	-7.	77.	153.	178.	139.	66.	-9.
APR.	448.	INC. RADN :	174.	232.	326.	375.	363.	346.	299.	222.
		SOLAR GAIN:	124.	163.	237.	272.	253.	250.	216.	157.
		COND. LOSS:	132.	132.	132.	132.	132.	132.	132.	132.
		NET GAIN :	-8.	31.	105.	140.	120.	117.	84.	25.
MAY	174.	INC. RADN :	162.	242.	331.	336.	293.	331.	325.	239.
		SOLAR GAIN:	110.	172.	241.	239.	190.	235.	237.	171.
		COND. LOSS:	64.	64.	64.	64.	64.	64.	64.	64.
		NET GAIN :	46.	108.	177.	174.	126.	171.	172.	106.
JUNE	57.	INC. RADN :	197.	299.	393.	368.	297.	351.	366.	279.
		SOLAR GAIN:	132.	214.	287.	257.	186.	245.	266.	199.
		COND. LOSS:	28.	28.	28.	28.	28.	28.	28.	28.
		NET GAIN :	104.	186.	259.	229.	159.	217.	238.	171.
JULY	20.	INC. RADN :	190.	288.	379.	359.	289.	349.	368.	281.
		SOLAR GAIN:	127.	207.	278.	253.	185.	246.	259.	202.
		COND. LOSS:	15.	15.	15.	15.	15.	15.	15.	15.
		NET GAIN :	112.	192.	263.	238.	170.	231.	254.	187.
AUG.	44.	INC. RADN :	147.	240.	352.	376.	331.	353.	328.	229.
		SOLAR GAIN:	100.	170.	259.	272.	222.	253.	240.	162.
		COND. LOSS:	24.	24.	24.	24.	24.	24.	24.	24.
		NET GAIN :	76.	146.	235.	248.	198.	229.	216.	138.
TOTALS**	4360.	INC. RADN :	814.	946.	1442.	2036.	2303.	1929.	1344.	914.
		SOLAR GAIN:	583.	665.	1035.	1496.	1700.	1409.	960.	645.
		COND. LOSS:	1217.	1218.	1218.	1219.	1219.	1219.	1218.	1217.
		NET GAIN :	-635.	-553.	-183.	278.	481.	190.	-258.	-572.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 21 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

MONTREAL 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT.	111.	INC. RADN :	100.	148.	243.	311.	311.	257.	186.	122.
		SOLAR GAIN:	66.	94.	161.	210.	204.	170.	122.	79.
		COND. LOSS:	31.	31.	31.	31.	31.	31.	31.	31.
		NET GAIN :	34.	63.	130.	179.	173.	139.	90.	46.
OCT.	243.	INC. RADN :	72.	97.	196.	290.	303.	210.	125.	76.
		SOLAR GAIN:	47.	59.	131.	200.	208.	140.	80.	49.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	-8.	4.	76.	145.	153.	85.	25.	-6.
NOV.	433.	INC. RADN :	36.	40.	79.	144.	189.	151.	84.	40.
		SOLAR GAIN:	24.	25.	51.	97.	133.	103.	55.	25.
		COND. LOSS:	87.	87.	87.	87.	87.	87.	87.	87.
		NET GAIN :	-63.	-62.	-36.	11.	46.	16.	-32.	-62.
DEC.	874.	INC. RADN :	83.	84.	127.	221.	279.	224.	129.	84.
		SOLAR GAIN:	55.	55.	81.	149.	195.	151.	83.	55.
		COND. LOSS:	154.	154.	154.	154.	154.	154.	154.	154.
		NET GAIN :	-99.	-99.	-73.	-5.	41.	-3.	-71.	-99.
JAN.	957.	INC. RADN :	102.	104.	159.	275.	353.	287.	168.	105.
		SOLAR GAIN:	67.	68.	102.	185.	246.	194.	109.	68.
		COND. LOSS:	165.	165.	165.	166.	166.	166.	165.	165.
		NET GAIN :	-98.	-98.	-63.	20.	80.	28.	-57.	-97.
FEB.	716.	INC. RADN :	120.	126.	181.	260.	305.	256.	179.	127.
		SOLAR GAIN:	79.	81.	119.	175.	209.	172.	117.	82.
		COND. LOSS:	128.	128.	128.	129.	129.	128.	128.	129.
		NET GAIN :	-50.	-47.	-10.	46.	81.	43.	-11.	-47.
MAR.	690.	INC. RADN :	226.	264.	373.	471.	511.	455.	359.	260.
		SOLAR GAIN:	149.	170.	247.	317.	340.	304.	237.	167.
		COND. LOSS:	128.	128.	128.	128.	128.	128.	128.	128.
		NET GAIN :	21.	42.	119.	189.	212.	176.	109.	40.
APR.	448.	INC. RADN :	174.	232.	326.	375.	363.	346.	299.	222.
		SOLAR GAIN:	113.	149.	217.	250.	231.	229.	198.	144.
		COND. LOSS:	89.	89.	89.	89.	89.	89.	39.	89.
		NET GAIN :	25.	61.	128.	161.	142.	140.	109.	55.
MAY	174.	INC. RADN :	162.	242.	331.	336.	293.	331.	325.	239.
		SOLAR GAIN:	100.	157.	221.	219.	172.	215.	217.	156.
		COND. LOSS:	43.	43.	43.	43.	43.	43.	43.	43.
		NET GAIN :	57.	114.	178.	176.	129.	172.	174.	113.
JUNE	57.	INC. RADN :	197.	299.	393.	368.	297.	351.	366.	279.
		SOLAR GAIN:	120.	196.	263.	235.	167.	224.	244.	182.
		COND. LOSS:	19.	19.	19.	19.	19.	19.	19.	19.
		NET GAIN :	101.	177.	244.	216.	148.	205.	225.	163.
JULY	20.	INC. RADN :	190.	288.	379.	359.	289.	349.	368.	281.
		SOLAR GAIN:	115.	190.	255.	231.	166.	225.	247.	185.
		COND. LOSS:	10.	10.	10.	10.	10.	10.	10.	10.
		NET GAIN :	105.	180.	245.	221.	156.	215.	237.	175.
AUG.	44.	INC. RADN :	147.	240.	352.	376.	331.	353.	328.	229.
		SOLAR GAIN:	91.	155.	237.	250.	201.	232.	220.	148.
		COND. LOSS:	16.	16.	16.	16.	16.	16.	16.	16.
		NET GAIN :	74.	139.	221.	234.	185.	216.	203.	132.
TOTALS	** 4360.	INC. RADN :	814.	946.	1442.	2036.	2303.	1929.	1344.	914.
		SOLAR GAIN:	533.	607.	948.	1373.	1562.	1292.	879.	590.
		COND. LOSS:	805.	805.	806.	807.	808.	807.	806.	805.
		NET GAIN :	-272.	-199.	141.	566.	754.	485.	72.	-216.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 22 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

HALIFAX 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	128.	INC. RADN :	86.	133.	217.	269.	282.	274.	220.	132.
		SOLAR GAIN:	70.	106.	179.	223.	226.	227.	181.	105.
		COND. LOSS:	104.	104.	104.	104.	104.	104.	104.	104.
		NET GAIN :	-34.	2.	76.	119.	123.	123.	77.	1.
OCT.	232.	INC. RADN :	70.	94.	216.	346.	404.	310.	188.	89.
		SOLAR GAIN:	57.	72.	177.	289.	339.	258.	153.	69.
		COND. LOSS:	159.	159.	159.	159.	159.	159.	159.	159.
		NET GAIN :	-102.	-86.	18.	130.	180.	99.	-6.	-90.
NOV.	389.	INC. RADN :	42.	48.	123.	238.	305.	230.	118.	48.
		SOLAR GAIN:	34.	38.	99.	199.	260.	192.	95.	37.
		COND. LOSS:	233.	233.	233.	233.	233.	233.	233.	233.
		NET GAIN :	-199.	-196.	-135.	-34.	27.	-42.	-138.	-196.
DEC.	697.	INC. RADN :	73.	73.	111.	197.	260.	215.	125.	74.
		SOLAR GAIN:	59.	59.	89.	162.	221.	179.	100.	59.
		COND. LOSS:	398.	398.	398.	398.	398.	398.	398.	398.
		NET GAIN :	-340.	-339.	-310.	-236.	-178.	-220.	-299.	-339.
JAN.	756.	INC. RADN :	101.	103.	152.	254.	326.	271.	164.	104.
		SOLAR GAIN:	82.	83.	121.	209.	275.	224.	132.	84.
		COND. LOSS:	422.	422.	422.	422.	422.	422.	422.	422.
		NET GAIN :	-339.	-339.	-300.	-212.	-146.	-198.	-290.	-338.
FEB.	621.	INC. RADN :	131.	141.	200.	282.	338.	295.	211.	143.
		SOLAR GAIN:	107.	113.	162.	232.	282.	244.	171.	114.
		COND. LOSS:	345.	345.	345.	345.	345.	345.	345.	345.
		NET GAIN :	-239.	-233.	-183.	-113.	-63.	-102.	-174.	-231.
MAR.	552.	INC. RADN :	227.	251.	327.	395.	433.	407.	342.	260.
		SOLAR GAIN:	184.	201.	266.	325.	353.	335.	279.	209.
		COND. LOSS:	325.	325.	325.	325.	325.	325.	325.	325.
		NET GAIN :	-141.	-124.	-59.	-0.	28.	10.	-46.	-116.
APR.	423.	INC. RADN :	109.	153.	224.	263.	275.	297.	262.	173.
		SOLAR GAIN:	87.	122.	184.	215.	216.	244.	216.	138.
		COND. LOSS:	253.	253.	253.	253.	253.	253.	253.	253.
		NET GAIN :	-165.	-130.	-69.	-38.	-36.	-9.	-37.	-114.
MAY	285.	INC. RADN :	143.	195.	259.	265.	235.	268.	271.	208.
		SOLAR GAIN:	112.	157.	213.	215.	179.	217.	223.	169.
		COND. LOSS:	179.	179.	179.	179.	179.	179.	179.	179.
		NET GAIN :	-67.	-22.	34.	36.	-0.	37.	44.	-11.
JUNE	147.	INC. RADN :	206.	295.	375.	341.	271.	351.	389.	306.
		SOLAR GAIN:	158.	241.	310.	272.	200.	279.	321.	249.
		COND. LOSS:	108.	108.	108.	108.	108.	108.	108.	108.
		NET GAIN :	50.	133.	202.	164.	92.	171.	213.	141.
JULY	50.	INC. RADN :	185.	253.	328.	321.	280.	354.	375.	287.
		SOLAR GAIN:	143.	206.	270.	258.	210.	284.	309.	233.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	88.	151.	215.	203.	155.	229.	254.	178.
AUG.	44.	INC. RADN :	138.	205.	301.	333.	321.	363.	341.	232.
		SOLAR GAIN:	108.	165.	247.	272.	248.	296.	282.	187.
		COND. LOSS:	54.	54.	54.	54.	54.	54.	54.	54.
		NET GAIN :	54.	111.	194.	218.	194.	243.	228.	133.
TOTALS**	3670.	INC. RADN :	754.	863.	1354.	1975.	2342.	2026.	1410.	892.
		SOLAR GAIN:	611.	688.	1097.	1632.	1947.	1674.	1145.	711.
		COND. LOSS:	2135.	2135.	2135.	2135.	2135.	2135.	2135.	2135.
		NET GAIN :	-1525.	-1447.	-1038.	-503.	-188.	-461.	-990.	-1425.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 23 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

HALIFAX 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	128.	INC. RADN :	86.	133.	217.	269.	282.	274.	220.	132.
		SOLAR GAIN:	61.	93.	159.	198.	199.	201.	160.	92.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	7.	38.	104.	143.	144.	147.	106.	37.
OCT.	232.	INC. RADN :	70.	94.	216.	346.	404.	310.	188.	89.
		SOLAR GAIN:	50.	63.	156.	258.	302.	229.	135.	60.
		COND. LOSS:	82.	82.	82.	82.	82.	82.	82.	82.
		NET GAIN :	-32.	-20.	74.	175.	220.	147.	53.	-22.
NOV.	339.	INC. RADN :	42.	48.	123.	238.	305.	230.	118.	48.
		SOLAR GAIN:	30.	33.	87.	177.	233.	170.	84.	33.
		COND. LOSS:	120.	120.	120.	120.	120.	120.	120.	120.
		NET GAIN :	-90.	-87.	-33.	57.	113.	50.	-36.	-87.
DEC.	697.	INC. RADN :	73.	73.	111.	197.	260.	215.	125.	74.
		SOLAR GAIN:	52.	52.	78.	144.	198.	159.	88.	52.
		COND. LOSS:	196.	196.	196.	196.	197.	197.	196.	196.
		NET GAIN :	-144.	-144.	-118.	-52.	1.	-38.	-109.	-144.
JAN.	756.	INC. RADN :	101.	103.	152.	254.	326.	271.	164.	104.
		SOLAR GAIN:	73.	73.	107.	186.	246.	199.	116.	74.
		COND. LOSS:	209.	209.	209.	209.	209.	209.	209.	209.
		NET GAIN :	-136.	-135.	-102.	-23.	37.	-10.	-93.	-135.
FEB.	621.	INC. RADN :	131.	141.	200.	282.	338.	295.	211.	143.
		SOLAR GAIN:	94.	99.	143.	206.	251.	216.	151.	100.
		COND. LOSS:	173.	173.	173.	173.	173.	173.	173.	173.
		NET GAIN :	-79.	-74.	-30.	33.	78.	43.	-22.	-73.
MAR.	552.	INC. RADN :	227.	251.	327.	395.	433.	407.	342.	260.
		SOLAR GAIN:	163.	177.	235.	288.	312.	297.	247.	184.
		COND. LOSS:	162.	162.	163.	163.	163.	163.	163.	162.
		NET GAIN :	0.	15.	73.	125.	150.	134.	84.	22.
APR.	423.	INC. RADN :	109.	153.	224.	263.	275.	297.	262.	173.
		SOLAR GAIN:	77.	108.	163.	190.	189.	216.	192.	122.
		COND. LOSS:	129.	129.	129.	129.	129.	129.	129.	129.
		NET GAIN :	-52.	-21.	34.	61.	60.	87.	63.	-7.
MAY	285.	INC. RADN :	143.	195.	259.	265.	235.	268.	271.	208.
		SOLAR GAIN:	98.	138.	189.	190.	155.	191.	193.	149.
		COND. LOSS:	94.	94.	94.	94.	94.	94.	94.	94.
		NET GAIN :	4.	44.	94.	95.	60.	96.	104.	54.
JUNE	147.	INC. RADN :	206.	295.	375.	341.	271.	351.	389.	306.
		SOLAR GAIN:	137.	213.	275.	239.	170.	244.	285.	220.
		COND. LOSS:	57.	57.	57.	57.	57.	57.	57.	57.
		NET GAIN :	80.	155.	217.	181.	113.	187.	227.	163.
JULY	50.	INC. RADN :	185.	253.	328.	321.	280.	354.	375.	287.
		SOLAR GAIN:	125.	182.	240.	227.	180.	250.	274.	206.
		COND. LOSS:	30.	30.	30.	30.	30.	30.	30.	30.
		NET GAIN :	95.	152.	210.	197.	150.	220.	245.	176.
AUG.	44.	INC. RADN :	138.	205.	301.	333.	321.	363.	341.	232.
		SOLAR GAIN:	94.	145.	219.	240.	215.	262.	250.	164.
		COND. LOSS:	29.	29.	29.	29.	29.	29.	29.	29.
		NET GAIN :	65.	116.	190.	211.	186.	233.	221.	135.
TOTALS**	3670.	INC. RADN :	754.	863.	1354.	1975.	2342.	2026.	1410.	892.
		SOLAR GAIN:	539.	604.	969.	1449.	1732.	1487.	1012.	624.
		COND. LOSS:	1072.	1072.	1072.	1073.	1073.	1073.	1072.	1072.
		NET GAIN :	-533.	-467.	-104.	376.	658.	414.	-60.	-447.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 24 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

HALIFAX 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	128.	INC. RADN :	86.	133.	217.	269.	282.	274.	220.	132.
		SOLAR GAIN:	56.	85.	146.	182.	182.	185.	147.	84.
		COND. LOSS:	37.	37.	37.	37.	37.	37.	37.	37.
		NET GAIN :	20.	48.	109.	145.	145.	148.	110.	47.
OCT.	232.	INC. RADN :	70.	94.	216.	346.	404.	310.	188.	89.
		SOLAR GAIN:	46.	57.	143.	236.	278.	210.	123.	55.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	-9.	2.	88.	181.	223.	155.	68.	-0.
NOV.	389.	INC. RADN :	42.	48.	123.	238.	305.	230.	118.	48.
		SOLAR GAIN:	28.	30.	79.	163.	215.	156.	77.	30.
		COND. LOSS:	80.	80.	80.	80.	80.	80.	80.	80.
		NET GAIN :	-52.	-50.	-1.	82.	135.	76.	-4.	-50.
DEC.	697.	INC. RADN :	73.	73.	111.	197.	260.	215.	125.	74.
		SOLAR GAIN:	48.	48.	71.	132.	182.	146.	80.	48.
		COND. LOSS:	129.	129.	129.	129.	130.	130.	129.	129.
		NET GAIN :	-82.	-82.	-58.	3.	52.	16.	-49.	-81.
JAN.	756.	INC. RADN :	101.	103.	152.	254.	326.	271.	164.	104.
		SOLAR GAIN:	67.	67.	97.	170.	227.	183.	106.	67.
		COND. LOSS:	137.	137.	138.	138.	138.	138.	138.	137.
		NET GAIN :	-71.	-70.	-40.	33.	89.	45.	-31.	-70.
FEB.	621.	INC. RADN :	131.	141.	200.	282.	338.	295.	211.	143.
		SOLAR GAIN:	86.	90.	131.	189.	231.	199.	139.	91.
		COND. LOSS:	114.	114.	115.	115.	115.	115.	115.	114.
		NET GAIN :	-28.	-24.	16.	74.	116.	84.	24.	-23.
MAR.	552.	INC. RADN :	227.	251.	327.	395.	433.	407.	342.	260.
		SOLAR GAIN:	149.	162.	215.	264.	286.	272.	226.	168.
		COND. LOSS:	108.	108.	108.	108.	108.	108.	108.	108.
		NET GAIN :	41.	54.	107.	156.	178.	164.	118.	61.
APR.	423.	INC. RADN :	109.	153.	224.	263.	275.	297.	262.	173.
		SOLAR GAIN:	70.	98.	149.	174.	172.	199.	176.	111.
		COND. LOSS:	86.	86.	86.	86.	86.	86.	86.	86.
		NET GAIN :	-16.	12.	63.	88.	86.	112.	90.	25.
MAY	285.	INC. RADN :	143.	195.	259.	265.	235.	268.	271.	208.
		SOLAR GAIN:	89.	127.	173.	174.	140.	175.	182.	136.
		COND. LOSS:	63.	63.	63.	63.	63.	63.	63.	63.
		NET GAIN :	26.	63.	110.	111.	77.	112.	118.	73.
JUNE	147.	INC. RADN :	206.	295.	375.	341.	271.	351.	389.	306.
		SOLAR GAIN:	125.	195.	252.	218.	152.	223.	261.	201.
		COND. LOSS:	38.	39.	39.	39.	38.	39.	39.	38.
		NET GAIN :	86.	156.	213.	179.	114.	185.	223.	163.
JULY	50.	INC. RADN :	185.	253.	328.	321.	280.	354.	375.	287.
		SOLAR GAIN:	113.	166.	219.	207.	162.	228.	252.	189.
		COND. LOSS:	20.	20.	20.	20.	20.	20.	20.	20.
		NET GAIN :	93.	146.	199.	187.	142.	208.	231.	168.
AUG.	44.	INC. RADN :	138.	205.	301.	333.	321.	363.	341.	232.
		SOLAR GAIN:	86.	132.	201.	220.	195.	240.	230.	150.
		COND. LOSS:	20.	20.	20.	20.	20.	20.	20.	20.
		NET GAIN :	66.	113.	181.	200.	175.	221.	210.	131.
TOTALS**	3670.	INC. RADN :	754.	863.	1354.	1975.	2342.	2026.	1410.	892.
		SOLAR GAIN:	493.	552.	887.	1329.	1591.	1364.	927.	570.
		COND. LOSS:	710.	710.	711.	711.	712.	711.	710.	710.
		NET GAIN :	-217.	-158.	176.	618.	879.	653.	216.	-140.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 25 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

ST. JOHN S 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	225.	INC. RADN :	89.	127.	218.	287.	312.	291.	226.	135.
		SOLAR GAIN:	72.	100.	178.	238.	253.	241.	186.	107.
		COND. LOSS:	158.	158.	158.	158.	158.	158.	158.	158.
		NET GAIN :	-87.	-58.	20.	79.	94.	82.	27.	-51.
OCT.	342.	INC. RADN :	66.	80.	149.	231.	286.	242.	157.	81.
		SOLAR GAIN:	53.	63.	121.	192.	240.	202.	128.	63.
		COND. LOSS:	224.	224.	224.	224.	224.	224.	224.	224.
		NET GAIN :	-171.	-161.	-103.	-32.	16.	-22.	-96.	-161.
NOV.	397.	INC. RADN :	37.	41.	94.	181.	231.	173.	88.	40.
		SOLAR GAIN:	30.	32.	75.	151.	197.	144.	70.	31.
		COND. LOSS:	246.	246.	246.	246.	246.	246.	246.	246.
		NET GAIN :	-216.	-214.	-170.	-94.	-49.	-101.	-176.	-214.
DEC.	633.	INC. RADN :	58.	59.	86.	148.	190.	155.	91.	59.
		SOLAR GAIN:	47.	47.	69.	122.	160.	129.	72.	47.
		COND. LOSS:	382.	382.	382.	382.	382.	382.	382.	382.
		NET GAIN :	-334.	-334.	-313.	-259.	-221.	-253.	-309.	-334.
JAN.	711.	INC. RADN :	82.	84.	114.	173.	213.	178.	117.	83.
		SOLAR GAIN:	67.	67.	92.	142.	178.	147.	94.	67.
		COND. LOSS:	425.	425.	425.	425.	425.	425.	425.	425.
		NET GAIN :	-358.	-357.	-333.	-282.	-246.	-278.	-330.	-357.
FEB.	625.	INC. RADN :	84.	96.	179.	290.	359.	292.	180.	96.
		SOLAR GAIN:	68.	75.	145.	241.	302.	242.	146.	76.
		COND. LOSS:	364.	364.	364.	364.	364.	364.	364.	364.
		NET GAIN :	-297.	-289.	-219.	-123.	-62.	-122.	-218.	-289.
MAR.	563.	INC. RADN :	88.	108.	172.	244.	289.	258.	184.	110.
		SOLAR GAIN:	71.	86.	140.	201.	238.	213.	149.	87.
		COND. LOSS:	344.	344.	344.	344.	344.	344.	344.	344.
		NET GAIN :	-274.	-259.	-205.	-144.	-107.	-131.	-195.	-257.
APR.	446.	INC. RADN :	96.	141.	217.	258.	249.	232.	193.	133.
		SOLAR GAIN:	77.	112.	179.	213.	199.	189.	158.	106.
		COND. LOSS:	275.	275.	275.	275.	275.	275.	275.	275.
		NET GAIN :	-198.	-163.	-96.	-62.	-76.	-85.	-117.	-168.
MAY	313.	INC. RADN :	162.	221.	295.	305.	276.	314.	313.	236.
		SOLAR GAIN:	126.	178.	243.	247.	212.	254.	258.	191.
		COND. LOSS:	208.	208.	208.	208.	208.	208.	208.	208.
		NET GAIN :	-81.	-30.	35.	40.	5.	46.	50.	-16.
JUNE	224.	INC. RADN :	177.	225.	282.	275.	244.	293.	311.	247.
		SOLAR GAIN:	139.	182.	231.	220.	185.	234.	255.	201.
		COND. LOSS:	162.	162.	162.	162.	162.	162.	162.	162.
		NET GAIN :	-24.	20.	68.	57.	23.	72.	93.	38.
JULY	114.	INC. RADN :	169.	228.	306.	314.	282.	333.	342.	260.
		SOLAR GAIN:	132.	183.	250.	252.	214.	267.	282.	211.
		COND. LOSS:	100.	100.	100.	100.	100.	100.	100.	100.
		NET GAIN :	32.	83.	150.	152.	114.	167.	182.	111.
AUG.	61.	INC. RADN :	133.	191.	277.	314.	308.	338.	310.	214.
		SOLAR GAIN:	104.	153.	227.	255.	240.	275.	255.	172.
		COND. LOSS:	66.	66.	66.	66.	66.	66.	66.	66.
		NET GAIN :	38.	86.	160.	188.	174.	209.	189.	106.
**										
TOTALS	3717.	INC. RADN :	511.	608.	1012.	1527.	1816.	1530.	1011.	603.
		SOLAR GAIN:	413.	482.	820.	1263.	1514.	1266.	817.	478.
		COND. LOSS:	2259.	2259.	2259.	2259.	2259.	2259.	2259.	2259.
		NET GAIN :	-1847.	-1777.	-1439.	-997.	-745.	-993.	-1442.	-1781.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 26 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

ST. JOHN S 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	225.	INC. RADN :	89.	127.	218.	287.	312.	291.	226.	135.
		SOLAR GAIN:	63.	88.	158.	211.	223.	214.	165.	94.
		COND. LOSS:	81.	81.	81.	81.	81.	81.	81.	81.
		NET GAIN :	-18.	7.	77.	130.	142.	133.	84.	13.
OCT.	342.	INC. RADN :	66.	80.	149.	231.	286.	242.	157.	81.
		SOLAR GAIN:	47.	55.	107.	171.	214.	180.	113.	55.
		COND. LOSS:	112.	112.	113.	113.	113.	113.	113.	112.
		NET GAIN :	-65.	-58.	-5.	58.	101.	67.	0.	-57.
NOV.	397.	INC. RADN :	37.	41.	94.	181.	231.	173.	88.	40.
		SOLAR GAIN:	27.	28.	66.	135.	177.	129.	61.	28.
		COND. LOSS:	124.	124.	124.	124.	124.	124.	124.	124.
		NET GAIN :	-98.	-96.	-58.	11.	53.	4.	-63.	-96.
DEC.	633.	INC. RADN :	58.	59.	86.	148.	190.	155.	91.	59.
		SOLAR GAIN:	42.	42.	60.	109.	144.	114.	64.	42.
		COND. LOSS:	185.	185.	185.	185.	185.	185.	185.	185.
		NET GAIN :	-143.	-143.	-125.	-76.	-41.	-71.	-121.	-143.
JAN.	711.	INC. RADN :	82.	84.	114.	173.	213.	178.	117.	83.
		SOLAR GAIN:	59.	59.	81.	126.	159.	130.	83.	59.
		COND. LOSS:	204.	204.	204.	204.	204.	204.	204.	204.
		NET GAIN :	-145.	-145.	-123.	-78.	-45.	-74.	-121.	-145.
FEB.	625.	INC. RADN :	84.	96.	179.	290.	359.	292.	190.	96.
		SOLAR GAIN:	60.	66.	128.	214.	270.	215.	129.	65.
		COND. LOSS:	178.	178.	178.	178.	178.	178.	178.	178.
		NET GAIN :	-118.	-112.	-50.	36.	92.	37.	-49.	-112.
MAR.	563.	INC. RADN :	88.	108.	172.	244.	289.	258.	184.	110.
		SOLAR GAIN:	63.	75.	123.	178.	211.	190.	132.	76.
		COND. LOSS:	168.	168.	168.	168.	168.	168.	168.	168.
		NET GAIN :	-106.	-93.	-45.	10.	43.	21.	-36.	-92.
APR.	446.	INC. RADN :	96.	141.	217.	258.	249.	232.	193.	133.
		SOLAR GAIN:	68.	98.	158.	189.	174.	168.	140.	94.
		COND. LOSS:	137.	137.	137.	137.	137.	137.	137.	137.
		NET GAIN :	-70.	-39.	21.	51.	37.	30.	3.	-44.
MAY	313.	INC. RADN :	162.	221.	295.	305.	276.	314.	313.	236.
		SOLAR GAIN:	110.	157.	215.	218.	184.	224.	229.	169.
		COND. LOSS:	105.	105.	105.	105.	105.	105.	105.	105.
		NET GAIN :	6.	52.	110.	114.	79.	119.	124.	64.
JUNE	224.	INC. RADN :	177.	225.	282.	275.	244.	293.	311.	247.
		SOLAR GAIN:	121.	161.	204.	193.	159.	206.	226.	177.
		COND. LOSS:	82.	82.	82.	82.	82.	82.	82.	82.
		NET GAIN :	39.	79.	123.	111.	78.	124.	145.	96.
JULY	114.	INC. RADN :	169.	228.	306.	314.	282.	333.	342.	260.
		SOLAR GAIN:	115.	161.	222.	222.	184.	235.	250.	186.
		COND. LOSS:	51.	51.	51.	51.	51.	51.	51.	51.
		NET GAIN :	64.	110.	171.	171.	133.	184.	199.	135.
AUG.	61.	INC. RADN :	133.	191.	277.	314.	308.	338.	310.	214.
		SOLAR GAIN:	91.	134.	201.	225.	209.	244.	227.	152.
		COND. LOSS:	34.	34.	34.	34.	34.	34.	34.	34.
		NET GAIN :	57.	101.	167.	191.	175.	210.	193.	118.
TOTALS**	3717.	INC. RADN :	511.	608.	1012.	1527.	1816.	1530.	1011.	603.
		SOLAR GAIN:	364.	423.	724.	1122.	1348.	1125.	722.	420.
		COND. LOSS:	1108.	1109.	1109.	1109.	1110.	1109.	1109.	1109.
		NET GAIN :	-744.	-685.	-385.	12.	239.	16.	-387.	-689.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 27 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

ST. JOHN S 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	225.	INC. RADN :	89.	127.	218.	287.	312.	291.	226.	135.
		SOLAR GAIN:	58.	80.	144.	194.	204.	196.	151.	86.
		COND. LOSS:	54.	54.	54.	54.	54.	54.	54.	54.
		NET GAIN :	4.	27.	91.	140.	151.	142.	97.	32.
OCT.	342.	INC. RADN :	66.	80.	149.	231.	286.	242.	157.	81.
		SOLAR GAIN:	43.	50.	98.	157.	196.	165.	103.	50.
		COND. LOSS:	74.	74.	74.	74.	75.	74.	74.	74.
		NET GAIN :	-31.	-24.	24.	82.	122.	91.	29.	-24.
NOV.	397.	INC. RADN :	37.	41.	94.	181.	231.	173.	88.	40.
		SOLAR GAIN:	24.	25.	61.	124.	163.	118.	56.	25.
		COND. LOSS:	82.	82.	82.	82.	82.	82.	82.	82.
		NET GAIN :	-58.	-57.	-22.	41.	80.	36.	-20.	-57.
DEC.	633.	INC. RADN :	58.	59.	86.	148.	190.	155.	91.	59.
		SOLAR GAIN:	38.	38.	55.	100.	132.	105.	58.	38.
		COND. LOSS:	121.	121.	121.	121.	121.	121.	121.	121.
		NET GAIN :	-83.	-83.	-66.	-22.	11.	-16.	-63.	-83.
JAN.	711.	INC. RADN :	82.	84.	114.	173.	213.	178.	117.	83.
		SOLAR GAIN:	54.	54.	74.	116.	147.	120.	76.	54.
		COND. LOSS:	133.	133.	133.	133.	134.	133.	133.	133.
		NET GAIN :	-79.	-79.	-60.	-18.	13.	-14.	-57.	-79.
FEB.	625.	INC. RADN :	84.	96.	179.	290.	359.	292.	180.	96.
		SOLAR GAIN:	55.	60.	117.	197.	249.	198.	118.	60.
		COND. LOSS:	117.	117.	117.	117.	117.	117.	117.	117.
		NET GAIN :	-62.	-57.	0.	80.	131.	81.	1.	-57.
MAR.	563.	INC. RADN :	88.	108.	172.	244.	289.	258.	184.	110.
		SOLAR GAIN:	57.	69.	113.	164.	194.	174.	121.	70.
		COND. LOSS:	111.	111.	111.	111.	111.	111.	111.	111.
		NET GAIN :	-53.	-42.	2.	53.	83.	63.	10.	-41.
APR.	446.	INC. RADN :	96.	141.	217.	258.	249.	232.	193.	133.
		SOLAR GAIN:	62.	90.	145.	173.	160.	154.	128.	86.
		COND. LOSS:	91.	91.	91.	91.	91.	91.	91.	91.
		NET GAIN :	-29.	-1.	54.	82.	69.	63.	37.	-5.
MAY	313.	INC. RADN :	162.	221.	295.	305.	276.	314.	313.	236.
		SOLAR GAIN:	100.	143.	197.	200.	167.	206.	210.	154.
		COND. LOSS:	69.	69.	69.	69.	69.	69.	69.	69.
		NET GAIN :	31.	74.	128.	131.	98.	136.	140.	85.
JUNE	224.	INC. RADN :	177.	225.	282.	275.	244.	293.	311.	247.
		SOLAR GAIN:	110.	147.	187.	176.	144.	188.	208.	162.
		COND. LOSS:	54.	54.	54.	54.	54.	54.	54.	54.
		NET GAIN :	56.	94.	133.	123.	90.	135.	154.	108.
JULY	114.	INC. RADN :	169.	228.	306.	314.	282.	333.	342.	260.
		SOLAR GAIN:	104.	147.	203.	204.	166.	215.	229.	170.
		COND. LOSS:	34.	34.	34.	34.	34.	34.	34.	34.
		NET GAIN :	71.	114.	170.	170.	133.	182.	196.	137.
AUG.	61.	INC. RADN :	133.	191.	277.	314.	308.	338.	310.	214.
		SOLAR GAIN:	83.	123.	184.	206.	191.	224.	208.	139.
		COND. LOSS:	22.	22.	22.	22.	22.	22.	22.	22.
		NET GAIN :	61.	100.	162.	184.	168.	201.	186.	116.
**										
TOTALS	3717.	INC. RADN :	511.	608.	1012.	1527.	1816.	1530.	1011.	603.
		SOLAR GAIN:	333.	386.	663.	1030.	1240.	1033.	661.	383.
		COND. LOSS:	729.	729.	730.	731.	731.	731.	730.	729.
		NET GAIN :	-396.	-343.	-67.	299.	509.	302.	-69.	-346.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 28 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SUMMERLAND 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	180.	INC. RADN :	93.	132.	227.	303.	323.	274.	196.	119.
		SOLAR GAIN:	75.	105.	187.	253.	265.	227.	160.	94.
		COND. LOSS:	113.	113.	113.	113.	113.	113.	113.	113.
		NET GAIN :	-37.	-7.	74.	140.	152.	114.	47.	-18.
OCT.	332.	INC. RADN :	63.	84.	190.	310.	343.	239.	130.	69.
		SOLAR GAIN:	51.	65.	156.	261.	291.	198.	104.	55.
		COND. LOSS:	186.	186.	186.	186.	186.	186.	186.	186.
		NET GAIN :	-135.	-121.	-30.	75.	105.	12.	-82.	-131.
NOV.	497.	INC. RADN :	44.	46.	86.	157.	198.	152.	82.	45.
		SOLAR GAIN:	35.	37.	69.	131.	169.	126.	65.	36.
		COND. LOSS:	276.	276.	276.	276.	276.	276.	276.	276.
		NET GAIN :	-241.	-239.	-207.	-145.	-107.	-150.	-211.	-240.
DEC.	619.	INC. RADN :	51.	51.	82.	157.	199.	155.	81.	51.
		SOLAR GAIN:	41.	41.	65.	130.	170.	129.	64.	41.
		COND. LOSS:	343.	343.	343.	343.	343.	343.	343.	343.
		NET GAIN :	-302.	-302.	-278.	-213.	-174.	-214.	-279.	-302.
JAN.	631.	INC. RADN :	57.	57.	79.	127.	160.	134.	84.	57.
		SOLAR GAIN:	46.	46.	63.	104.	135.	111.	67.	46.
		COND. LOSS:	351.	351.	351.	351.	351.	351.	351.	351.
		NET GAIN :	-304.	-304.	-288.	-246.	-215.	-240.	-284.	-304.
FEB.	472.	INC. RADN :	58.	66.	128.	224.	291.	239.	140.	68.
		SOLAR GAIN:	47.	52.	103.	187.	247.	200.	113.	53.
		COND. LOSS:	265.	265.	265.	265.	265.	265.	265.	265.
		NET GAIN :	-218.	-214.	-163.	-79.	-18.	-66.	-152.	-212.
MAR.	483.	INC. RADN :	91.	128.	247.	366.	423.	362.	246.	130.
		SOLAR GAIN:	74.	101.	202.	305.	350.	301.	201.	103.
		COND. LOSS:	274.	274.	274.	274.	274.	274.	274.	274.
		NET GAIN :	-200.	-173.	-72.	31.	76.	27.	-73.	-171.
APR.	284.	INC. RADN :	123.	213.	343.	398.	376.	363.	302.	190.
		SOLAR GAIN:	98.	172.	285.	331.	300.	300.	249.	152.
		COND. LOSS:	165.	165.	165.	165.	165.	165.	165.	165.
		NET GAIN :	-67.	7.	121.	166.	136.	135.	84.	-13.
MAY	139.	INC. RADN :	176.	269.	380.	398.	352.	375.	354.	255.
		SOLAR GAIN:	136.	218.	314.	323.	273.	303.	291.	207.
		COND. LOSS:	98.	98.	98.	98.	98.	98.	98.	98.
		NET GAIN :	38.	119.	216.	225.	174.	205.	193.	109.
JUNE	93.	INC. RADN :	204.	295.	386.	370.	304.	340.	349.	272.
		SOLAR GAIN:	160.	242.	321.	297.	232.	272.	287.	222.
		COND. LOSS:	72.	72.	72.	72.	72.	72.	72.	72.
		NET GAIN :	89.	170.	249.	226.	160.	200.	216.	151.
JULY	52.	INC. RADN :	218.	355.	490.	470.	377.	435.	444.	326.
		SOLAR GAIN:	167.	291.	408.	380.	286.	350.	369.	267.
		COND. LOSS:	43.	43.	43.	43.	43.	43.	43.	43.
		NET GAIN :	124.	247.	365.	337.	242.	307.	325.	223.
AUG.	28.	INC. RADN :	153.	292.	460.	503.	439.	445.	391.	251.
		SOLAR GAIN:	117.	236.	384.	415.	344.	365.	323.	202.
		COND. LOSS:	27.	27.	27.	27.	27.	27.	27.	27.
		NET GAIN :	90.	209.	357.	388.	318.	338.	296.	175.
TOTALS**	3318.	INC. RADN :	486.	645.	1154.	1738.	1990.	1645.	1064.	610.
		SOLAR GAIN:	393.	513.	943.	1449.	1662.	1364.	864.	486.
		COND. LOSS:	1859.	1859.	1859.	1859.	1859.	1859.	1859.	1859.
		NET GAIN :	-1467.	-1346.	-916.	-410.	-197.	-495.	-996.	-1373.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 29 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SUMMERLAND 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	130.	INC. RADN :	93.	132.	227.	303.	323.	274.	196.	119.
		SOLAR GAIN:	67.	92.	165.	225.	235.	201.	141.	83.
		COND. LOSS:	62.	62.	62.	62.	62.	62.	62.	62.
		NET GAIN :	5.	30.	103.	163.	172.	139.	79.	21.
OCT.	332.	INC. RADN :	63.	84.	190.	310.	343.	239.	130.	69.
		SOLAR GAIN:	45.	56.	138.	233.	260.	176.	91.	48.
		COND. LOSS:	101.	101.	101.	101.	101.	101.	101.	101.
		NET GAIN :	-56.	-45.	37.	132.	159.	75.	-9.	-53.
NOV.	497.	INC. RADN :	44.	46.	86.	157.	198.	152.	82.	45.
		SOLAR GAIN:	31.	32.	61.	116.	152.	112.	57.	32.
		COND. LOSS:	143.	143.	143.	143.	143.	143.	143.	143.
		NET GAIN :	-111.	-110.	-82.	-26.	9.	-30.	-85.	-111.
DEC.	619.	INC. RADN :	51.	51.	82.	157.	199.	155.	81.	51.
		SOLAR GAIN:	36.	36.	57.	116.	152.	115.	56.	36.
		COND. LOSS:	174.	174.	174.	174.	174.	174.	174.	174.
		NET GAIN :	-138.	-137.	-117.	-58.	-22.	-59.	-118.	-137.
JAN.	631.	INC. RADN :	57.	57.	79.	127.	160.	134.	84.	57.
		SOLAR GAIN:	41.	41.	55.	93.	121.	98.	59.	41.
		COND. LOSS:	177.	177.	177.	177.	177.	177.	177.	177.
		NET GAIN :	-136.	-136.	-122.	-84.	-56.	-79.	-118.	-136.
FEB.	472.	INC. RADN :	58.	66.	128.	224.	291.	239.	140.	68.
		SOLAR GAIN:	42.	45.	91.	166.	221.	178.	100.	46.
		COND. LOSS:	136.	136.	136.	137.	137.	137.	136.	136.
		NET GAIN :	-95.	-91.	-46.	29.	84.	41.	-36.	-90.
MAR.	483.	INC. RADN :	91.	128.	247.	366.	423.	362.	246.	130.
		SOLAR GAIN:	65.	88.	178.	271.	310.	268.	178.	90.
		COND. LOSS:	141.	141.	142.	142.	142.	142.	142.	141.
		NET GAIN :	-76.	-53.	37.	130.	169.	126.	36.	-51.
APR.	284.	INC. RADN :	123.	213.	343.	398.	376.	363.	302.	190.
		SOLAR GAIN:	86.	151.	254.	294.	263.	266.	221.	134.
		COND. LOSS:	89.	89.	89.	89.	89.	89.	89.	89.
		NET GAIN :	-3.	62.	164.	204.	174.	176.	132.	44.
MAY	139.	INC. RADN :	176.	269.	380.	398.	352.	375.	354.	255.
		SOLAR GAIN:	119.	192.	279.	285.	236.	267.	258.	183.
		COND. LOSS:	53.	53.	53.	53.	53.	53.	53.	53.
		NET GAIN :	66.	139.	226.	232.	183.	214.	205.	130.
JUNE	93.	INC. RADN :	204.	295.	386.	370.	304.	340.	349.	272.
		SOLAR GAIN:	140.	213.	285.	261.	199.	238.	255.	196.
		COND. LOSS:	39.	39.	39.	39.	39.	39.	39.	39.
		NET GAIN :	100.	174.	245.	222.	160.	199.	215.	157.
JULY	52.	INC. RADN :	218.	355.	490.	470.	377.	435.	444.	326.
		SOLAR GAIN:	145.	257.	363.	335.	246.	308.	327.	235.
		COND. LOSS:	24.	24.	24.	24.	24.	24.	24.	24.
		NET GAIN :	121.	233.	339.	311.	222.	284.	304.	212.
AUG.	28.	INC. RADN :	153.	292.	460.	503.	439.	445.	391.	251.
		SOLAR GAIN:	102.	208.	342.	368.	300.	322.	287.	178.
		COND. LOSS:	15.	15.	15.	15.	15.	15.	15.	15.
		NET GAIN :	87.	193.	327.	353.	285.	308.	272.	163.
TOTALS**	3318.	INC. RADN :	486.	645.	1154.	1738.	1990.	1645.	1064.	610.
		SOLAR GAIN:	346.	450.	834.	1289.	1479.	1212.	763.	427.
		COND. LOSS:	961.	961.	962.	962.	962.	962.	961.	961.
		NET GAIN :	-615.	-511.	-128.	326.	517.	250.	-199.	-534.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 30 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SUMMERLAND 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	180.	INC. RADN :	93.	132.	227.	303.	323.	274.	196.	119.
		SOLAR GAIN:	61.	84.	151.	206.	215.	184.	130.	75.
		COND. LOSS:	42.	42.	42.	42.	42.	42.	42.	42.
		NET GAIN :	19.	42.	109.	164.	173.	142.	87.	33.
OCT.	332.	INC. RADN :	63.	84.	190.	310.	343.	239.	130.	69.
		SOLAR GAIN:	41.	51.	126.	214.	239.	161.	84.	44.
		COND. LOSS:	68.	68.	69.	69.	69.	68.	68.	68.
		NET GAIN :	-27.	-18.	58.	145.	171.	93.	15.	-25.
NOV.	497.	INC. RADN :	44.	46.	86.	157.	198.	152.	82.	45.
		SOLAR GAIN:	29.	29.	56.	107.	140.	103.	52.	29.
		COND. LOSS:	95.	95.	96.	96.	96.	96.	95.	95.
		NET GAIN :	-67.	-66.	-40.	11.	44.	7.	-43.	-67.
DEC.	619.	INC. RADN :	51.	51.	82.	157.	199.	155.	81.	51.
		SOLAR GAIN:	33.	33.	52.	106.	140.	105.	51.	33.
		COND. LOSS:	116.	116.	116.	116.	116.	116.	116.	116.
		NET GAIN :	-83.	-82.	-64.	-10.	24.	-11.	-64.	-83.
JAN.	631.	INC. RADN :	57.	57.	79.	127.	160.	134.	84.	57.
		SOLAR GAIN:	37.	37.	51.	85.	111.	90.	54.	37.
		COND. LOSS:	118.	118.	118.	118.	118.	118.	118.	118.
		NET GAIN :	-80.	-80.	-67.	-33.	-6.	-27.	-64.	-80.
FEB.	472.	INC. RADN :	58.	66.	128.	224.	291.	239.	140.	68.
		SOLAR GAIN:	38.	41.	83.	152.	203.	163.	92.	42.
		COND. LOSS:	91.	91.	91.	91.	92.	91.	91.	91.
		NET GAIN :	-53.	-50.	-8.	61.	112.	72.	0.	-49.
MAR.	483.	INC. RADN :	91.	128.	247.	366.	423.	362.	246.	130.
		SOLAR GAIN:	59.	81.	163.	249.	285.	246.	163.	82.
		COND. LOSS:	95.	95.	95.	95.	95.	95.	95.	95.
		NET GAIN :	-35.	-14.	68.	154.	190.	151.	68.	-13.
APR.	284.	INC. RADN :	123.	213.	343.	398.	376.	363.	302.	190.
		SOLAR GAIN:	78.	138.	233.	270.	241.	244.	202.	122.
		COND. LOSS:	60.	60.	61.	61.	61.	60.	60.	60.
		NET GAIN :	18.	77.	172.	209.	180.	183.	142.	62.
MAY	139.	INC. RADN :	176.	269.	380.	398.	352.	375.	354.	255.
		SOLAR GAIN:	108.	175.	255.	261.	215.	245.	236.	167.
		COND. LOSS:	36.	36.	36.	36.	36.	36.	36.	36.
		NET GAIN :	72.	140.	220.	225.	179.	209.	201.	131.
JUNE	93.	INC. RADN :	204.	295.	386.	370.	304.	340.	349.	272.
		SOLAR GAIN:	127.	195.	261.	239.	180.	218.	233.	180.
		COND. LOSS:	27.	27.	27.	27.	27.	27.	27.	27.
		NET GAIN :	100.	168.	234.	212.	153.	191.	207.	153.
JULY	52.	INC. RADN :	218.	355.	490.	470.	377.	435.	444.	326.
		SOLAR GAIN:	131.	235.	333.	306.	222.	282.	300.	215.
		COND. LOSS:	16.	16.	16.	16.	16.	16.	16.	16.
		NET GAIN :	115.	219.	317.	290.	206.	265.	284.	199.
AUG.	28.	INC. RADN :	153.	292.	460.	503.	439.	445.	391.	251.
		SOLAR GAIN:	92.	190.	313.	338.	273.	296.	263.	163.
		COND. LOSS:	10.	10.	10.	10.	10.	10.	10.	10.
		NET GAIN :	82.	180.	303.	328.	263.	286.	253.	152.
TOTALS**	3318.	INC. RADN :	486.	645.	1154.	1738.	1990.	1645.	1064.	610.
		SOLAR GAIN:	316.	411.	764.	1183.	1359.	1112.	698.	390.
		COND. LOSS:	643.	644.	644.	645.	645.	645.	644.	644.
		NET GAIN :	-327.	-233.	119.	538.	714.	467.	54.	-254.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 31 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SUFFIELD 1970/1971 SINGLE GLAZING

MONTH	DEG. DAYS *		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	222.	INC. RADN :	92.	161.	309.	420.	449.	396.	284.	150.
		SOLAR GAIN:	74.	127.	255.	351.	366.	330.	233.	118.
		COND. LOSS:	145.	145.	145.	145.	145.	145.	145.	145.
		NET GAIN :	-71.	-18.	110.	206.	221.	184.	88.	-27.
OCT.	424.	INC. RADN :	70.	99.	237.	391.	470.	366.	215.	93.
		SOLAR GAIN:	57.	76.	194.	327.	395.	306.	175.	72.
		COND. LOSS:	251.	251.	251.	251.	251.	251.	251.	251.
		NET GAIN :	-194.	-175.	-57.	76.	144.	55.	-77.	-180.
NOV.	723.	INC. RADN :	37.	40.	116.	259.	344.	256.	114.	40.
		SOLAR GAIN:	30.	31.	92.	217.	296.	214.	91.	31.
		COND. LOSS:	390.	390.	390.	390.	390.	390.	390.	390.
		NET GAIN :	-360.	-359.	-297.	-173.	-94.	-175.	-299.	-359.
DEC.	914.	INC. RADN :	75.	76.	140.	271.	351.	272.	141.	76.
		SOLAR GAIN:	61.	61.	111.	225.	299.	226.	112.	61.
		COND. LOSS:	485.	485.	485.	485.	485.	485.	485.	485.
		NET GAIN :	-424.	-423.	-374.	-260.	-186.	-258.	-373.	-423.
JAN.	1023.	INC. RADN :	70.	71.	140.	276.	350.	263.	130.	71.
		SOLAR GAIN:	57.	57.	112.	231.	299.	218.	103.	57.
		COND. LOSS:	531.	531.	531.	531.	531.	531.	531.	531.
		NET GAIN :	-474.	-474.	-419.	-300.	-231.	-312.	-427.	-474.
FEB.	658.	INC. RADN :	68.	86.	210.	380.	482.	375.	205.	85.
		SOLAR GAIN:	56.	67.	170.	318.	409.	313.	166.	65.
		COND. LOSS:	354.	354.	354.	354.	354.	354.	354.	354.
		NET GAIN :	-299.	-288.	-184.	-36.	55.	-41.	-189.	-289.
MAR.	645.	INC. RADN :	137.	190.	351.	509.	581.	492.	334.	183.
		SOLAR GAIN:	112.	150.	287.	424.	481.	409.	273.	145.
		COND. LOSS:	360.	360.	360.	360.	360.	360.	360.	360.
		NET GAIN :	-248.	-210.	-72.	64.	121.	49.	-87.	-215.
APR.	345.	INC. RADN :	123.	211.	347.	420.	416.	408.	334.	204.
		SOLAR GAIN:	98.	168.	287.	348.	333.	337.	275.	163.
		COND. LOSS:	212.	212.	212.	212.	212.	212.	212.	212.
		NET GAIN :	-114.	-43.	76.	136.	121.	125.	64.	-49.
MAY	170.	INC. RADN :	186.	299.	433.	449.	387.	432.	420.	298.
		SOLAR GAIN:	142.	242.	359.	365.	297.	350.	348.	242.
		COND. LOSS:	117.	117.	117.	117.	117.	117.	117.	117.
		NET GAIN :	25.	125.	241.	248.	180.	233.	230.	125.
JUNE	94.	INC. RADN :	218.	302.	397.	383.	325.	383.	405.	313.
		SOLAR GAIN:	169.	246.	328.	307.	247.	306.	334.	256.
		COND. LOSS:	75.	75.	75.	75.	75.	75.	75.	75.
		NET GAIN :	95.	171.	253.	232.	172.	232.	260.	181.
JULY	68.	INC. RADN :	221.	331.	456.	450.	386.	458.	470.	343.
		SOLAR GAIN:	170.	270.	378.	363.	294.	369.	389.	280.
		COND. LOSS:	57.	57.	57.	57.	57.	57.	57.	57.
		NET GAIN :	112.	212.	320.	305.	236.	312.	332.	222.
AUG.	26.	INC. RADN :	148.	240.	386.	460.	465.	505.	444.	276.
		SOLAR GAIN:	114.	192.	318.	377.	366.	415.	368.	222.
		COND. LOSS:	28.	28.	28.	28.	28.	28.	28.	28.
		NET GAIN :	86.	164.	290.	349.	338.	387.	340.	194.
TOTALS **	4732.	INC. RADN :	581.	774.	1541.	2506.	2994.	2433.	1473.	751.
		SOLAR GAIN:	469.	611.	1254.	2090.	2513.	2024.	1195.	594.
		COND. LOSS:	2582.	2582.	2582.	2582.	2582.	2582.	2582.	2582.
		NET GAIN :	-2113.	-1971.	-1328.	-492.	-69.	-559.	-1387.	-1988.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 32 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SUFFIELD 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	222.	INC. RADN :	92.	161.	309.	420.	449.	396.	284.	150.
		SOLAR GAIN:	65.	111.	226.	312.	323.	293.	207.	104.
		COND. LOSS:	75.	75.	75.	75.	75.	75.	75.	75.
		NET GAIN :	-9.	36.	151.	237.	248.	218.	132.	29.
OCT.	424.	INC. RADN :	70.	99.	237.	391.	470.	366.	215.	93.
		SOLAR GAIN:	50.	66.	172.	292.	353.	272.	154.	62.
		COND. LOSS:	128.	128.	128.	128.	128.	128.	128.	128.
		NET GAIN :	-78.	-62.	44.	164.	225.	144.	20.	-66.
NOV.	723.	INC. RADN :	37.	40.	116.	259.	344.	256.	114.	40.
		SOLAR GAIN:	26.	27.	81.	193.	266.	191.	80.	27.
		COND. LOSS:	196.	196.	196.	197.	197.	197.	196.	196.
		NET GAIN :	-170.	-169.	-115.	-4.	69.	-6.	-117.	-169.
DEC.	914.	INC. RADN :	75.	76.	140.	271.	351.	272.	141.	76.
		SOLAR GAIN:	54.	54.	98.	200.	268.	201.	99.	54.
		COND. LOSS:	241.	241.	241.	242.	242.	242.	241.	241.
		NET GAIN :	-187.	-187.	-144.	-42.	26.	-40.	-143.	-187.
JAN.	1023.	INC. RADN :	70.	71.	140.	276.	350.	263.	130.	71.
		SOLAR GAIN:	50.	50.	98.	205.	268.	194.	91.	50.
		COND. LOSS:	264.	264.	264.	265.	265.	265.	264.	264.
		NET GAIN :	-214.	-214.	-166.	-59.	3.	-71.	-174.	-214.
FEB.	658.	INC. RADN :	68.	86.	210.	380.	482.	375.	205.	85.
		SOLAR GAIN:	49.	58.	150.	284.	366.	279.	146.	57.
		COND. LOSS:	179.	179.	179.	179.	179.	179.	179.	179.
		NET GAIN :	-130.	-121.	-29.	104.	187.	100.	-33.	-122.
MAR.	645.	INC. RADN :	137.	190.	351.	509.	581.	492.	334.	183.
		SOLAR GAIN:	99.	132.	255.	377.	427.	363.	241.	127.
		COND. LOSS:	181.	181.	182.	182.	182.	182.	181.	181.
		NET GAIN :	-83.	-50.	73.	196.	245.	182.	60.	-54.
APR.	345.	INC. RADN :	123.	211.	347.	420.	416.	408.	334.	204.
		SOLAR GAIN:	86.	148.	255.	309.	292.	299.	244.	143.
		COND. LOSS:	109.	109.	109.	109.	109.	109.	109.	109.
		NET GAIN :	-23.	39.	146.	200.	183.	190.	135.	34.
MAY	170.	INC. RADN :	186.	299.	433.	449.	387.	432.	420.	298.
		SOLAR GAIN:	124.	214.	318.	322.	257.	309.	309.	213.
		COND. LOSS:	61.	61.	62.	61.	61.	61.	61.	61.
		NET GAIN :	62.	152.	257.	261.	196.	247.	247.	152.
JUNE	94.	INC. RADN :	218.	302.	397.	383.	325.	383.	405.	313.
		SOLAR GAIN:	147.	217.	291.	270.	213.	269.	297.	226.
		COND. LOSS:	40.	40.	40.	40.	40.	40.	40.	40.
		NET GAIN :	108.	178.	251.	230.	173.	229.	257.	187.
JULY	68.	INC. RADN :	221.	331.	456.	450.	386.	458.	470.	343.
		SOLAR GAIN:	147.	238.	336.	319.	253.	325.	346.	247.
		COND. LOSS:	30.	30.	30.	30.	30.	30.	30.	30.
		NET GAIN :	117.	208.	305.	289.	223.	294.	316.	217.
AUG.	26.	INC. RADN :	148.	240.	386.	460.	465.	505.	444.	276.
		SOLAR GAIN:	99.	169.	282.	333.	320.	367.	326.	195.
		COND. LOSS:	15.	15.	15.	15.	15.	15.	15.	15.
		NET GAIN :	84.	154.	267.	319.	305.	352.	312.	181.
TOTALS**	4732.	INC. RADN :	581.	774.	1541.	2506.	2994.	2433.	1473.	751.
		SOLAR GAIN:	414.	535.	1108.	1859.	2241.	1800.	1055.	520.
		COND. LOSS:	1299.	1299.	1300.	1301.	1301.	1301.	1300.	1299.
		NET GAIN :	-885.	-764.	-192.	558.	939.	499.	-245.	-778.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 33 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SUFFIELD 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	222.	INC. RADN :	92.	161.	309.	420.	449.	396.	284.	150.
		SOLAR GAIN:	60.	102.	208.	287.	296.	269.	189.	94.
		COND. LOSS:	50.	50.	50.	50.	50.	50.	50.	50.
		NET GAIN :	10.	52.	158.	236.	246.	219.	139.	44.
OCT.	424.	INC. RADN :	70.	99.	237.	391.	470.	366.	215.	93.
		SOLAR GAIN:	46.	59.	158.	268.	325.	250.	141.	56.
		COND. LOSS:	85.	85.	85.	85.	85.	85.	85.	85.
		NET GAIN :	-39.	-26.	72.	182.	239.	165.	56.	-29.
NOV.	723.	INC. RADN :	37.	40.	116.	259.	344.	256.	114.	40.
		SOLAR GAIN:	24.	25.	74.	177.	245.	175.	73.	25.
		COND. LOSS:	130.	130.	130.	130.	130.	130.	130.	130.
		NET GAIN :	-106.	-105.	-56.	47.	115.	45.	-57.	-105.
DEC.	914.	INC. RADN :	75.	76.	140.	271.	351.	272.	141.	76.
		SOLAR GAIN:	50.	50.	89.	183.	247.	185.	90.	50.
		COND. LOSS:	158.	158.	159.	159.	159.	159.	159.	158.
		NET GAIN :	-109.	-109.	-69.	24.	88.	26.	-68.	-109.
JAN.	1023.	INC. RADN :	70.	71.	140.	276.	350.	263.	130.	71.
		SOLAR GAIN:	46.	46.	90.	189.	247.	178.	83.	46.
		COND. LOSS:	173.	173.	173.	174.	174.	174.	173.	173.
		NET GAIN :	-127.	-127.	-84.	15.	73.	5.	-90.	-127.
FEB.	658.	INC. RADN :	68.	86.	210.	380.	482.	375.	205.	85.
		SOLAR GAIN:	45.	52.	137.	261.	337.	256.	134.	52.
		COND. LOSS:	119.	119.	119.	119.	119.	119.	119.	119.
		NET GAIN :	-74.	-66.	18.	141.	218.	137.	15.	-67.
MAR.	645.	INC. RADN :	137.	190.	351.	509.	581.	492.	334.	183.
		SOLAR GAIN:	90.	120.	233.	346.	392.	334.	221.	116.
		COND. LOSS:	120.	120.	121.	121.	121.	121.	121.	120.
		NET GAIN :	-30.	-1.	113.	225.	271.	213.	100.	-5.
APR.	345.	INC. RADN :	123.	211.	347.	420.	416.	408.	334.	204.
		SOLAR GAIN:	78.	135.	234.	283.	268.	274.	224.	131.
		COND. LOSS:	73.	73.	73.	73.	73.	73.	73.	73.
		NET GAIN :	5.	63.	161.	210.	195.	202.	151.	58.
MAY	170.	INC. RADN :	186.	299.	433.	449.	387.	432.	420.	298.
		SOLAR GAIN:	112.	195.	292.	296.	234.	283.	283.	195.
		COND. LOSS:	41.	41.	41.	41.	41.	41.	41.	41.
		NET GAIN :	71.	154.	251.	254.	193.	242.	242.	154.
JUNE	94.	INC. RADN :	218.	302.	397.	383.	325.	383.	405.	313.
		SOLAR GAIN:	134.	199.	267.	247.	192.	246.	272.	207.
		COND. LOSS:	27.	27.	27.	27.	27.	27.	27.	27.
		NET GAIN :	107.	172.	240.	220.	166.	219.	246.	181.
JULY	68.	INC. RADN :	221.	331.	456.	450.	386.	458.	470.	343.
		SOLAR GAIN:	133.	218.	308.	292.	229.	297.	317.	226.
		COND. LOSS:	20.	20.	20.	20.	20.	20.	20.	20.
		NET GAIN :	113.	198.	287.	272.	209.	277.	297.	206.
AUG.	26.	INC. RADN :	148.	240.	386.	460.	465.	505.	444.	276.
		SOLAR GAIN:	90.	154.	259.	306.	292.	337.	299.	179.
		COND. LOSS:	10.	10.	10.	10.	10.	10.	10.	10.
		NET GAIN :	80.	144.	249.	296.	282.	327.	289.	169.
TOTALS**	4732.	INC. RADN :	581.	774.	1541.	2506.	2994.	2433.	1473.	751.
		SOLAR GAIN:	378.	488.	1015.	1708.	2061.	1652.	966.	475.
		COND. LOSS:	858.	858.	860.	861.	862.	861.	859.	858.
		NET GAIN :	-480.	-371.	155.	846.	1199.	792.	107.	-384.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 34 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SWIFTCURRENT 1970/1971 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	241.	INC. RADN :	95.	157.	293.	399.	439.	400.	293.	155.
		SOLAR GAIN:	77.	124.	241.	331.	357.	333.	240.	123.
		COND. LOSS:	167.	167.	167.	167.	167.	167.	167.	167.
		NET GAIN :	-90.	-43.	74.	164.	190.	165.	73.	-45.
OCT.	452.	INC. RADN :	71.	90.	187.	309.	384.	314.	192.	91.
		SOLAR GAIN:	57.	70.	152.	257.	322.	261.	156.	70.
		COND. LOSS:	285.	285.	285.	285.	285.	285.	285.	285.
		NET GAIN :	-228.	-215.	-133.	-28.	37.	-24.	-129.	-215.
NOV.	740.	INC. RADN :	59.	61.	123.	234.	300.	229.	119.	61.
		SOLAR GAIN:	48.	49.	98.	194.	255.	190.	95.	49.
		COND. LOSS:	435.	435.	435.	435.	435.	435.	435.	435.
		NET GAIN :	-387.	-386.	-337.	-241.	-180.	-245.	-340.	-386.
DEC.	966.	INC. RADN :	73.	74.	137.	265.	344.	267.	139.	74.
		SOLAR GAIN:	59.	59.	109.	219.	292.	221.	110.	59.
		COND. LOSS:	571.	571.	571.	571.	571.	571.	571.	571.
		NET GAIN :	-512.	-511.	-462.	-352.	-279.	-349.	-461.	-511.
JAN.	1099.	INC. RADN :	87.	88.	128.	226.	294.	243.	141.	88.
		SOLAR GAIN:	70.	71.	102.	185.	248.	201.	112.	71.
		COND. LOSS:	636.	636.	636.	636.	636.	636.	636.	636.
		NET GAIN :	-566.	-566.	-534.	-451.	-388.	-435.	-524.	-566.
FEB.	760.	INC. RADN :	137.	152.	255.	393.	471.	381.	245.	150.
		SOLAR GAIN:	111.	120.	206.	325.	394.	314.	197.	119.
		COND. LOSS:	456.	456.	456.	456.	456.	456.	456.	456.
		NET GAIN :	-345.	-336.	-250.	-131.	-62.	-142.	-259.	-337.
MAR.	756.	INC. RADN :	231.	272.	390.	496.	541.	480.	375.	267.
		SOLAR GAIN:	187.	217.	318.	409.	443.	395.	305.	213.
		COND. LOSS:	455.	455.	455.	455.	455.	455.	455.	455.
		NET GAIN :	-268.	-238.	-138.	-46.	-13.	-60.	-150.	-242.
APR.	425.	INC. RADN :	154.	231.	354.	418.	407.	388.	322.	216.
		SOLAR GAIN:	122.	185.	291.	344.	326.	318.	264.	173.
		COND. LOSS:	273.	273.	273.	273.	273.	273.	273.	273.
		NET GAIN :	-151.	-89.	18.	71.	52.	44.	-10.	-100.
MAY	204.	INC. RADN :	185.	303.	435.	444.	381.	424.	410.	288.
		SOLAR GAIN:	141.	245.	359.	360.	291.	343.	338.	232.
		COND. LOSS:	150.	150.	150.	150.	150.	150.	150.	150.
		NET GAIN :	-9.	94.	209.	210.	141.	193.	188.	82.
JUNE	115.	INC. RADN :	207.	285.	370.	356.	305.	357.	373.	289.
		SOLAR GAIN:	161.	232.	304.	285.	232.	285.	307.	235.
		COND. LOSS:	98.	98.	98.	98.	98.	98.	98.	98.
		NET GAIN :	63.	134.	206.	187.	134.	187.	209.	137.
JULY	100.	INC. RADN :	210.	315.	431.	426.	367.	429.	436.	318.
		SOLAR GAIN:	161.	255.	356.	342.	278.	345.	360.	258.
		COND. LOSS:	87.	87.	87.	87.	87.	87.	87.	87.
		NET GAIN :	74.	168.	269.	255.	191.	258.	273.	171.
AUG.	46.	INC. RADN :	148.	267.	421.	474.	445.	473.	415.	260.
		SOLAR GAIN:	113.	214.	348.	389.	349.	388.	343.	208.
		COND. LOSS:	46.	46.	46.	46.	46.	46.	46.	46.
		NET GAIN :	68.	169.	302.	343.	303.	342.	297.	163.
TOTALS**	5198.	INC. RADN :	812.	968.	1575.	2340.	2740.	2302.	1533.	948.
		SOLAR GAIN:	655.	770.	1275.	1933.	2279.	1900.	1240.	754.
		COND. LOSS:	3112.	3112.	3112.	3112.	3112.	3112.	3112.	3112.
		NET GAIN :	-2457.	-2342.	-1837.	-1178.	-833.	-1212.	-1872.	-2358.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 35 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SWIFTCURRENT 1970/1971 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	241.	INC. RADN :	95.	157.	293.	399.	439.	400.	293.	155.
		SOLAR GAIN:	68.	109.	214.	295.	316.	296.	213.	107.
		COND. LOSS:	84.	84.	84.	84.	84.	84.	84.	84.
		NET GAIN :	-15.	25.	130.	211.	232.	212.	129.	24.
OCT.	452.	INC. RADN :	71.	90.	187.	309.	384.	314.	192.	91.
		SOLAR GAIN:	51.	61.	134.	229.	287.	233.	138.	61.
		COND. LOSS:	140.	140.	140.	140.	140.	140.	140.	140.
		NET GAIN :	-89.	-79.	-6.	88.	147.	93.	-2.	-79.
NOV.	740.	INC. RADN :	59.	61.	123.	234.	300.	229.	119.	61.
		SOLAR GAIN:	42.	43.	86.	173.	228.	169.	84.	43.
		COND. LOSS:	209.	209.	209.	209.	209.	209.	209.	209.
		NET GAIN :	-167.	-166.	-123.	-37.	19.	-40.	-125.	-166.
DEC.	966.	INC. RADN :	73.	74.	137.	265.	344.	267.	139.	74.
		SOLAR GAIN:	52.	52.	96.	195.	262.	197.	97.	52.
		COND. LOSS:	267.	267.	267.	267.	267.	267.	267.	267.
		NET GAIN :	-214.	-214.	-171.	-72.	-5.	-70.	-170.	-214.
JAN.	1099.	INC. RADN :	87.	88.	128.	226.	294.	243.	141.	88.
		SOLAR GAIN:	62.	62.	90.	164.	222.	179.	99.	62.
		COND. LOSS:	297.	297.	297.	297.	297.	297.	297.	297.
		NET GAIN :	-235.	-234.	-207.	-132.	-75.	-118.	-198.	-234.
FEB.	760.	INC. RADN :	137.	152.	255.	393.	471.	381.	245.	150.
		SOLAR GAIN:	98.	105.	182.	289.	351.	279.	174.	104.
		COND. LOSS:	214.	214.	215.	215.	215.	215.	215.	214.
		NET GAIN :	-117.	-109.	-33.	74.	136.	64.	-40.	-110.
MAR.	756.	INC. RADN :	231.	272.	390.	496.	541.	480.	375.	267.
		SOLAR GAIN:	165.	191.	281.	363.	392.	350.	270.	187.
		COND. LOSS:	217.	217.	217.	217.	217.	217.	217.	217.
		NET GAIN :	-51.	-26.	64.	146.	175.	134.	53.	-29.
APR.	425.	INC. RADN :	154.	231.	354.	418.	407.	388.	322.	216.
		SOLAR GAIN:	107.	162.	258.	305.	286.	281.	234.	152.
		COND. LOSS:	134.	134.	134.	134.	134.	134.	134.	134.
		NET GAIN :	-26.	28.	124.	171.	152.	147.	100.	18.
MAY	204.	INC. RADN :	185.	303.	435.	444.	381.	424.	410.	288.
		SOLAR GAIN:	123.	216.	319.	318.	252.	303.	300.	205.
		COND. LOSS:	75.	75.	75.	75.	75.	75.	75.	75.
		NET GAIN :	48.	140.	244.	243.	177.	228.	225.	129.
JUNE	115.	INC. RADN :	207.	285.	370.	356.	305.	357.	373.	289.
		SOLAR GAIN:	140.	205.	270.	250.	200.	250.	272.	207.
		COND. LOSS:	50.	50.	50.	50.	50.	50.	50.	50.
		NET GAIN :	90.	155.	220.	200.	150.	200.	223.	158.
JULY	100.	INC. RADN :	210.	315.	431.	426.	367.	429.	436.	318.
		SOLAR GAIN:	140.	225.	316.	301.	240.	304.	320.	227.
		COND. LOSS:	44.	44.	44.	44.	44.	44.	44.	44.
		NET GAIN :	96.	181.	272.	257.	196.	259.	275.	183.
AUG.	46.	INC. RADN :	148.	267.	421.	474.	445.	473.	415.	260.
		SOLAR GAIN:	99.	189.	309.	344.	304.	343.	304.	183.
		COND. LOSS:	23.	23.	23.	23.	23.	23.	23.	23.
		NET GAIN :	75.	165.	286.	321.	281.	320.	281.	160.
TOTALS**	5198.	INC. RADN :	812.	968.	1575.	2340.	2740.	2302.	1533.	948.
		SOLAR GAIN:	578.	677.	1127.	1718.	2029.	1688.	1095.	663.
		COND. LOSS:	1477.	1477.	1478.	1479.	1479.	1479.	1478.	1477.
		NET GAIN :	-899.	-801.	-351.	239.	549.	210.	-383.	-814.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 36 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

SWIFTCURRENT 1970/1971 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	241.	INC. RADN :	95.	157.	293.	399.	439.	400.	293.	155.
		SOLAR GAIN:	62.	99.	196.	271.	290.	272.	195.	98.
		COND. LOSS:	55.	55.	55.	55.	55.	55.	55.	55.
		NET GAIN :	7.	44.	141.	215.	234.	217.	140.	43.
OCT.	452.	INC. RADN :	71.	90.	187.	309.	384.	314.	192.	91.
		SOLAR GAIN:	46.	55.	123.	210.	264.	214.	126.	56.
		COND. LOSS:	92.	92.	92.	92.	92.	92.	92.	92.
		NET GAIN :	-46.	-37.	31.	118.	172.	122.	34.	-37.
NOV.	740.	INC. RADN :	59.	61.	123.	234.	300.	229.	119.	61.
		SOLAR GAIN:	39.	39.	78.	159.	211.	155.	77.	39.
		COND. LOSS:	136.	136.	136.	136.	137.	136.	136.	136.
		NET GAIN :	-98.	-97.	-58.	22.	74.	19.	-60.	-97.
DEC.	966.	INC. RADN :	73.	74.	137.	265.	344.	267.	139.	74.
		SOLAR GAIN:	48.	48.	87.	179.	241.	181.	89.	48.
		COND. LOSS:	171.	171.	172.	172.	172.	172.	172.	171.
		NET GAIN :	-124.	-123.	-84.	7.	69.	9.	-83.	-123.
JAN.	1099.	INC. RADN :	87.	88.	128.	226.	294.	243.	141.	88.
		SOLAR GAIN:	57.	57.	82.	151.	204.	164.	90.	57.
		COND. LOSS:	190.	190.	190.	190.	191.	191.	190.	190.
		NET GAIN :	-133.	-133.	-108.	-39.	14.	-26.	-100.	-133.
FEB.	760.	INC. RADN :	137.	152.	255.	393.	471.	381.	245.	150.
		SOLAR GAIN:	90.	96.	167.	266.	323.	256.	160.	95.
		COND. LOSS:	139.	139.	139.	139.	139.	139.	139.	139.
		NET GAIN :	-49.	-43.	28.	126.	184.	117.	21.	-44.
MAR.	756.	INC. RADN :	231.	272.	390.	496.	541.	480.	375.	267.
		SOLAR GAIN:	151.	175.	258.	333.	360.	322.	247.	171.
		COND. LOSS:	141.	141.	141.	141.	142.	141.	141.	141.
		NET GAIN :	10.	33.	116.	192.	219.	180.	106.	30.
APR.	425.	INC. RADN :	154.	231.	354.	418.	407.	388.	322.	216.
		SOLAR GAIN:	98.	149.	237.	281.	262.	258.	214.	139.
		COND. LOSS:	88.	88.	88.	88.	88.	88.	88.	88.
		NET GAIN :	10.	60.	149.	192.	174.	170.	126.	51.
MAY	204.	INC. RADN :	185.	303.	435.	444.	381.	424.	410.	288.
		SOLAR GAIN:	111.	197.	293.	292.	229.	278.	275.	187.
		COND. LOSS:	49.	50.	50.	50.	50.	50.	50.	49.
		NET GAIN :	62.	148.	244.	242.	179.	229.	226.	138.
JUNE	115.	INC. RADN :	207.	285.	370.	356.	305.	357.	373.	289.
		SOLAR GAIN:	127.	188.	247.	229.	181.	229.	250.	190.
		COND. LOSS:	33.	33.	33.	33.	33.	33.	33.	33.
		NET GAIN :	95.	155.	215.	196.	148.	196.	217.	157.
JULY	100.	INC. RADN :	210.	315.	431.	426.	367.	429.	436.	318.
		SOLAR GAIN:	127.	206.	290.	276.	217.	278.	293.	208.
		COND. LOSS:	29.	29.	29.	29.	29.	29.	29.	29.
		NET GAIN :	98.	177.	261.	247.	188.	249.	264.	179.
AUG.	46.	INC. RADN :	148.	267.	421.	474.	445.	473.	415.	260.
		SOLAR GAIN:	89.	173.	283.	316.	278.	315.	279.	167.
		COND. LOSS:	15.	15.	15.	15.	15.	15.	15.	15.
		NET GAIN :	74.	157.	268.	301.	262.	300.	264.	152.
TOTALS**	5198.	INC. RADN :	812.	968.	1575.	2340.	2740.	2302.	1533.	948.
		SOLAR GAIN:	529.	618.	1033.	1578.	1866.	1550.	1003.	606.
		COND. LOSS:	958.	958.	959.	960.	961.	960.	959.	958.
		NET GAIN :	-429.	-339.	74.	618.	905.	590.	45.	-352.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 37 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

CHARLOTTETWN 1972/1973 SINGLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	133.	INC. RADN :	86.	140.	246.	315.	329.	306.	236.	136.
		SOLAR GAIN:	70.	111.	202.	262.	265.	253.	194.	108.
		COND. LOSS:	107.	107.	107.	107.	107.	107.	107.	107.
		NET GAIN :	-38.	3.	95.	154.	158.	146.	87.	0.
OCT.	349.	INC. RADN :	62.	81.	169.	264.	309.	245.	153.	78.
		SOLAR GAIN:	51.	63.	138.	220.	259.	203.	125.	61.
		COND. LOSS:	224.	224.	224.	224.	224.	224.	224.	224.
		NET GAIN :	-174.	-161.	-86.	-4.	35.	-21.	-100.	-163.
NOV.	523.	INC. RADN :	48.	51.	100.	196.	261.	207.	108.	51.
		SOLAR GAIN:	39.	40.	79.	163.	222.	172.	86.	40.
		COND. LOSS:	312.	312.	312.	312.	312.	312.	312.	312.
		NET GAIN :	-273.	-272.	-233.	-149.	-90.	-140.	-226.	-272.
DEC.	770.	INC. RADN :	70.	71.	106.	182.	235.	194.	115.	71.
		SOLAR GAIN:	57.	57.	85.	150.	199.	160.	92.	57.
		COND. LOSS:	442.	442.	442.	442.	442.	442.	442.	442.
		NET GAIN :	-385.	-385.	-357.	-292.	-243.	-282.	-350.	-385.
JAN.	794.	INC. RADN :	98.	100.	163.	272.	336.	266.	159.	100.
		SOLAR GAIN:	79.	80.	130.	225.	284.	219.	127.	80.
		COND. LOSS:	460.	460.	460.	460.	460.	460.	460.	460.
		NET GAIN :	-381.	-380.	-329.	-235.	-176.	-241.	-332.	-380.
FEB.	718.	INC. RADN :	115.	128.	205.	293.	333.	270.	188.	125.
		SOLAR GAIN:	93.	102.	167.	243.	278.	223.	152.	100.
		COND. LOSS:	414.	414.	414.	414.	414.	414.	414.	414.
		NET GAIN :	-321.	-312.	-247.	-171.	-136.	-191.	-262.	-314.
MAR.	616.	INC. RADN :	179.	233.	373.	489.	525.	457.	344.	224.
		SOLAR GAIN:	145.	185.	306.	405.	429.	377.	281.	179.
		COND. LOSS:	358.	358.	358.	358.	358.	358.	358.	358.
		NET GAIN :	-213.	-173.	-52.	47.	71.	19.	-77.	-180.
APR.	460.	INC. RADN :	120.	175.	255.	295.	295.	302.	259.	174.
		SOLAR GAIN:	96.	140.	210.	241.	234.	247.	212.	138.
		COND. LOSS:	279.	279.	279.	279.	279.	279.	279.	279.
		NET GAIN :	-184.	-139.	-70.	-38.	-45.	-32.	-67.	-141.
MAY	317.	INC. RADN :	138.	171.	217.	231.	231.	263.	253.	190.
		SOLAR GAIN:	109.	138.	177.	185.	178.	212.	207.	153.
		COND. LOSS:	207.	207.	207.	207.	207.	207.	207.	207.
		NET GAIN :	-98.	-69.	-31.	-22.	-30.	5.	-1.	-54.
JUNE	97.	INC. RADN :	185.	258.	333.	320.	270.	324.	341.	265.
		SOLAR GAIN:	143.	209.	273.	255.	201.	258.	280.	216.
		COND. LOSS:	83.	83.	83.	83.	83.	83.	83.	83.
		NET GAIN :	61.	127.	191.	172.	119.	175.	197.	133.
JULY	13.	INC. RADN :	183.	268.	355.	345.	289.	335.	343.	261.
		SOLAR GAIN:	143.	217.	292.	277.	217.	268.	281.	212.
		COND. LOSS:	25.	25.	25.	25.	25.	25.	25.	25.
		NET GAIN :	118.	192.	267.	253.	193.	244.	257.	187.
AUG.	37.	INC. RADN :	133.	202.	299.	339.	328.	346.	307.	207.
		SOLAR GAIN:	105.	162.	246.	277.	257.	282.	253.	166.
		COND. LOSS:	48.	48.	48.	48.	48.	48.	48.	48.
		NET GAIN :	57.	114.	198.	229.	209.	234.	205.	118.
TOTALS**	4228.	INC. RADN :	692.	839.	1372.	1990.	2296.	1941.	1326.	824.
		SOLAR GAIN:	560.	668.	1114.	1647.	1905.	1602.	1075.	656.
		COND. LOSS:	2489.	2489.	2489.	2489.	2489.	2489.	2489.	2489.
		NET GAIN :	-1930.	-1822.	-1375.	-843.	-584.	-887.	-1414.	-1834.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 38 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

CHARLOTTETWN 1972/1973 DOUBLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	133.	INC. RADN :	86.	140.	246.	315.	329.	306.	236.	136.
		SOLAR GAIN:	61.	97.	180.	233.	233.	225.	173.	94.
		COND. LOSS:	56.	56.	56.	56.	56.	56.	56.	56.
		NET GAIN :	6.	42.	124.	177.	178.	169.	117.	39.
OCT.	349.	INC. RADN :	62.	81.	169.	264.	309.	245.	153.	78.
		SOLAR GAIN:	45.	55.	122.	196.	231.	180.	110.	53.
		COND. LOSS:	113.	113.	113.	113.	113.	113.	113.	113.
		NET GAIN :	-68.	-58.	9.	83.	117.	67.	-3.	-60.
NOV.	523.	INC. RADN :	48.	51.	100.	196.	261.	207.	108.	51.
		SOLAR GAIN:	34.	35.	70.	145.	199.	153.	76.	36.
		COND. LOSS:	155.	155.	155.	155.	155.	155.	155.	155.
		NET GAIN :	-121.	-120.	-85.	-10.	44.	-2.	-79.	-119.
DEC.	770.	INC. RADN :	70.	71.	106.	182.	235.	194.	115.	71.
		SOLAR GAIN:	50.	51.	74.	133.	178.	143.	81.	51.
		COND. LOSS:	215.	215.	215.	215.	215.	215.	215.	215.
		NET GAIN :	-165.	-165.	-141.	-82.	-37.	-73.	-134.	-164.
JAN.	794.	INC. RADN :	98.	100.	163.	272.	336.	266.	159.	100.
		SOLAR GAIN:	70.	71.	115.	200.	254.	195.	112.	71.
		COND. LOSS:	222.	222.	222.	222.	222.	222.	222.	222.
		NET GAIN :	-152.	-151.	-107.	-23.	32.	-27.	-110.	-151.
FEB.	718.	INC. RADN :	115.	128.	205.	293.	333.	270.	188.	125.
		SOLAR GAIN:	82.	89.	148.	216.	247.	198.	134.	87.
		COND. LOSS:	200.	200.	200.	200.	200.	200.	200.	200.
		NET GAIN :	-118.	-111.	-53.	16.	47.	-2.	-66.	-113.
MAR.	616.	INC. RADN :	179.	233.	373.	489.	525.	457.	344.	224.
		SOLAR GAIN:	128.	163.	271.	360.	380.	335.	249.	157.
		COND. LOSS:	178.	178.	178.	178.	178.	178.	178.	178.
		NET GAIN :	-49.	-15.	93.	182.	202.	157.	71.	-21.
APR.	460.	INC. RADN :	120.	175.	255.	295.	295.	302.	259.	174.
		SOLAR GAIN:	84.	124.	186.	214.	205.	219.	188.	122.
		COND. LOSS:	140.	140.	140.	140.	140.	140.	140.	140.
		NET GAIN :	-56.	-16.	46.	74.	65.	79.	48.	-18.
MAY	317.	INC. RADN :	138.	171.	217.	231.	231.	263.	253.	190.
		SOLAR GAIN:	96.	122.	156.	163.	163.	187.	183.	135.
		COND. LOSS:	105.	105.	105.	105.	105.	105.	105.	105.
		NET GAIN :	-10.	16.	51.	57.	48.	82.	78.	29.
JUNE	97.	INC. RADN :	185.	258.	333.	320.	270.	324.	341.	265.
		SOLAR GAIN:	125.	185.	242.	223.	172.	226.	248.	190.
		COND. LOSS:	42.	42.	42.	42.	42.	42.	42.	42.
		NET GAIN :	83.	142.	200.	181.	130.	183.	205.	148.
JULY	13.	INC. RADN :	183.	268.	355.	345.	289.	335.	343.	261.
		SOLAR GAIN:	124.	191.	259.	244.	186.	236.	249.	187.
		COND. LOSS:	13.	13.	13.	13.	13.	13.	13.	13.
		NET GAIN :	111.	178.	246.	231.	173.	223.	236.	174.
AUG.	37.	INC. RADN :	133.	202.	299.	339.	328.	346.	307.	207.
		SOLAR GAIN:	92.	142.	218.	245.	223.	250.	224.	146.
		COND. LOSS:	25.	25.	26.	26.	25.	25.	25.	25.
		NET GAIN :	66.	117.	193.	220.	198.	224.	199.	120.
TOTALS**	4228.	INC. RADN :	692.	839.	1372.	1990.	2296.	1941.	1326.	824.
		SOLAR GAIN:	494.	586.	985.	1463.	1694.	1423.	950.	576.
		COND. LOSS:	1222.	1223.	1223.	1224.	1224.	1224.	1223.	1223.
		NET GAIN :	-729.	-636.	-238.	239.	469.	199.	-273.	-646.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)

TABLE 39 NET HEAT GAIN THROUGH WINDOWS (MJ/SQ.M.)

CHARLOTTETOWN 1972/1973 TRIPLE GLAZING

MONTH	DEG.DAYS*		NORTH	N.E.	EAST	S.E.	SOUTH	S.W.	WEST	N.W.
SEPT	133.	INC. RADN :	86.	140.	246.	315.	329.	306.	236.	136.
		SOLAR GAIN:	56.	89.	165.	214.	214.	207.	158.	86.
		COND. LOSS:	37.	37.	37.	37.	37.	37.	37.	37.
		NET GAIN :	19.	52.	128.	177.	177.	170.	121.	49.
OCT.	349.	INC. RADN :	62.	81.	169.	264.	309.	245.	153.	78.
		SOLAR GAIN:	41.	50.	112.	180.	212.	165.	101.	48.
		COND. LOSS:	75.	75.	75.	75.	75.	75.	75.	75.
		NET GAIN :	-34.	-25.	37.	105.	137.	90.	26.	-27.
NOV.	523.	INC. RADN :	48.	51.	100.	196.	261.	207.	103.	51.
		SOLAR GAIN:	31.	32.	64.	133.	184.	141.	69.	32.
		COND. LOSS:	102.	102.	103.	103.	103.	103.	103.	102.
		NET GAIN :	-71.	-70.	-39.	30.	81.	38.	-33.	-70.
DEC.	770.	INC. RADN :	70.	71.	106.	182.	235.	194.	115.	71.
		SOLAR GAIN:	46.	46.	68.	122.	164.	131.	74.	46.
		COND. LOSS:	141.	141.	141.	141.	141.	141.	141.	141.
		NET GAIN :	-95.	-95.	-73.	-19.	22.	-10.	-67.	-95.
JAN.	794.	INC. RADN :	98.	100.	163.	272.	336.	266.	159.	100.
		SOLAR GAIN:	64.	65.	105.	183.	234.	179.	103.	65.
		COND. LOSS:	145.	145.	145.	145.	145.	145.	145.	145.
		NET GAIN :	-81.	-80.	-40.	38.	89.	34.	-42.	-80.
FEB.	718.	INC. RADN :	115.	128.	205.	293.	333.	270.	188.	125.
		SOLAR GAIN:	75.	81.	135.	198.	228.	182.	123.	80.
		COND. LOSS:	131.	131.	131.	131.	131.	131.	131.	131.
		NET GAIN :	-56.	-49.	4.	67.	97.	51.	-8.	-51.
MAR.	616.	INC. RADN :	179.	233.	373.	489.	525.	457.	344.	224.
		SOLAR GAIN:	118.	148.	248.	330.	349.	307.	228.	143.
		COND. LOSS:	117.	117.	118.	118.	118.	118.	117.	117.
		NET GAIN :	0.	31.	130.	213.	231.	190.	110.	26.
APR.	460.	INC. RADN :	120.	175.	255.	295.	295.	302.	259.	174.
		SOLAR GAIN:	77.	113.	170.	196.	187.	201.	172.	111.
		COND. LOSS:	93.	93.	93.	93.	93.	93.	93.	93.
		NET GAIN :	-16.	20.	78.	103.	94.	108.	80.	19.
MAY	317.	INC. RADN :	138.	171.	217.	231.	231.	263.	253.	190.
		SOLAR GAIN:	87.	111.	143.	149.	139.	171.	168.	123.
		COND. LOSS:	70.	70.	70.	70.	70.	70.	70.	70.
		NET GAIN :	17.	41.	73.	79.	70.	101.	98.	53.
JUNE	97.	INC. RADN :	185.	258.	333.	320.	270.	324.	341.	265.
		SOLAR GAIN:	114.	169.	222.	204.	155.	206.	227.	174.
		COND. LOSS:	28.	28.	28.	28.	28.	28.	28.	28.
		NET GAIN :	85.	141.	194.	176.	127.	178.	199.	146.
JULY	13.	INC. RADN :	183.	268.	355.	345.	289.	335.	343.	261.
		SOLAR GAIN:	113.	175.	237.	223.	168.	216.	228.	171.
		COND. LOSS:	9.	9.	9.	9.	9.	9.	9.	9.
		NET GAIN :	104.	166.	229.	215.	159.	207.	220.	162.
AUG.	37.	INC. RADN :	133.	202.	299.	339.	328.	346.	307.	207.
		SOLAR GAIN:	84.	130.	200.	225.	203.	229.	205.	133.
		COND. LOSS:	17.	17.	17.	17.	17.	17.	17.	17.
		NET GAIN :	67.	113.	183.	208.	186.	212.	188.	116.
TOTALS**	4228.	INC. RADN :	692.	839.	1372.	1990.	2296.	1941.	1326.	824.
		SOLAR GAIN:	452.	536.	902.	1343.	1557.	1306.	870.	526.
		COND. LOSS:	803.	804.	805.	805.	806.	805.	804.	804.
		NET GAIN :	-351.	-268.	98.	538.	751.	500.	66.	-277.

* BASE 18 C

** TOTALS OVER HEATING SEASON (OCTOBER TO APRIL INCLUSIVE)