UNIVERSITY OF OXFORD

DEPARTMENT OF ENGINEERING SCIENCE

REPORT

WIND TUNNEL PRESSURE MEASUREMENTS

ON THE AYLESBURY LOW-RISE HOUSING ESTATE

Part II

Mean, R.M.S. and Extreme Pressures with Frequency Spectra

M. E. Greenway and C. J. Wood

ENGINEERING LABORATORY

PARKS ROAD

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CONTENTS

Page

LIST OF ILLUSTRATIONS

TABLES

1. INTRODUCTION

This report continues the account, begun by the authors in Part I (Greenway and Wood 1977), of the wind pressure measurements made in Oxford on a model of the Aylesbury low-rise housing estate. The layout of this site is described fully by Eaton and Mayne (1974), of the Building Research Establishment, whose site plans are reproduced in Part I of this report.

Full-scale records of wind pressure were obtained at this site by the B.R.E. (Eaton and Mayne 1974, Eaton, Mayne and Cook 1976). These tests used pressure transducers installed at a total of 44 points on 7 of the estate houses and also at 74 points on a specially constructed test house with a variable-pitch roof.

A number of different wind directions were experienced during the course of the full-scale investigation and the upstream terrain varied accordingly. It ranged from open farmland for winds with a westerly component, to low-rise urban development for easterly winds.

Attention in the present wind tunnel study has been focused upon those cases, designated A 7, A 32 and A 38 by Eaton and Mayne, for which the most complete full-scale data is available, and which involved winds from the west over rural terrain. Part I includes an account of the wind simulation which was devised to model the structure of these winds at the chosen scale of 1/75 in the 4m x 2m wind tunnel. The tunnel itself is described fully by Wood (1977).

In addition to the wind simulation, Part I includes a discussion and comparison of mean pressures measured on the estate houses and the test house for a wind direction, relative to the estate datum line, of 265°. This corresponds to the full-scale runs A 7 and A 32.

The present report completes the survey for this wind direction by adding R.M.S. and extreme pressure measurements with spectral information where appropriate. It also presents a second complete set of measurements on the test house alone corresponding to the varied roof pitch records A38.

These experiments do not represent an exhaustive repetition of all possible cases therefore. Rather, they are chosen to make possible a careful assessment of the comparison between wind tunnel data and full-scale results including, where this is available, data from other wind tunnel experiments.

In this context, the work of Bray (1977) at the University of Bristol provides measurements on the estate houses alone for the A7 wind direction and also for an urban simulation case (A1). Apperley et al. (1978) modelled the test house alone with a variety of wind directions, while Cook at the B.R.E. has also used an isolated test house model, concentrating on the A35 and A38 wind directions.

Some measurements of mean pressures on the isolated test house are reported by Holmes and Best (1977) of James Cook University, North Queensland, and further results from this source are expected. Holmes and Best also refer to mean pressure data obtained by Barnard and Gandemer (1974) at C.S.T.B. (France), but the present authors have not had access to these results.

Up to the time of writing, the Oxford study is unique in that it presents extreme value data, not as single samples but in the form of a Fisher-Tippett type 1 probability function based upon 16 independent trials at each point. Naturally this work was very expensive in terms of tunnel time but it is hoped that the effort will be rewarded by the more enlightening comparisons which can be made.

2. PREDICTION OF EXTREME WIND PRESSURES FROM TUNNEL DATA

As a background to the discussion of the wind tunnel measurements presented in this report, this first chapter is written to draw together and interpret the relevant statistical arguments which are needed as a justification for the measurements which have been made. It may be of value to those who are not familiar with this area of research, and it can safely be ignored by those who are.

There is of course no possibility in the context of the present work on the Aylesbury estate to compare any extreme value prediction with long-term experience as the site layout has already been altered. Nevertheless a discussion of the prediction method is included in order to complete the context for the experimental results.

2.1 The Design of a Bivariate Experiment

It has become conventional to regard the prediction of wind effects as a bivariate problem involving the joint probability of a mean wind speed and of a speed-independent local pressure coefficient or velocity ratio. The justification for this approach is based upon the widely accepted Van der Hoven wind spectrum (Van der Hoven 1957) which consists of two obviously distinct parts separated by a fairly wide frequency band (0.5 to 5 cycles/hour) where there is very little energy (Fig.1).

To isolate the low frequency part, which is caused entirely by meteorological fluctuations, the wind is described in terms of a speed V which is the average over a period T (normally one hour in the U.K.) of the instantaneous wind speed at a specified position, usually 10m above ground level. This averaging process is equivalent to the removal by low-pass filter of all information in the high frequency part of the spectrum.

To retain adequate information when the continuous record of V is replaced by a sequence of discrete samples, it is necessary to sample the filtered signal at intervals approximately equal to T (see Appendix B) and to continue the trial for a period not less than T_1 where T_1 is normally

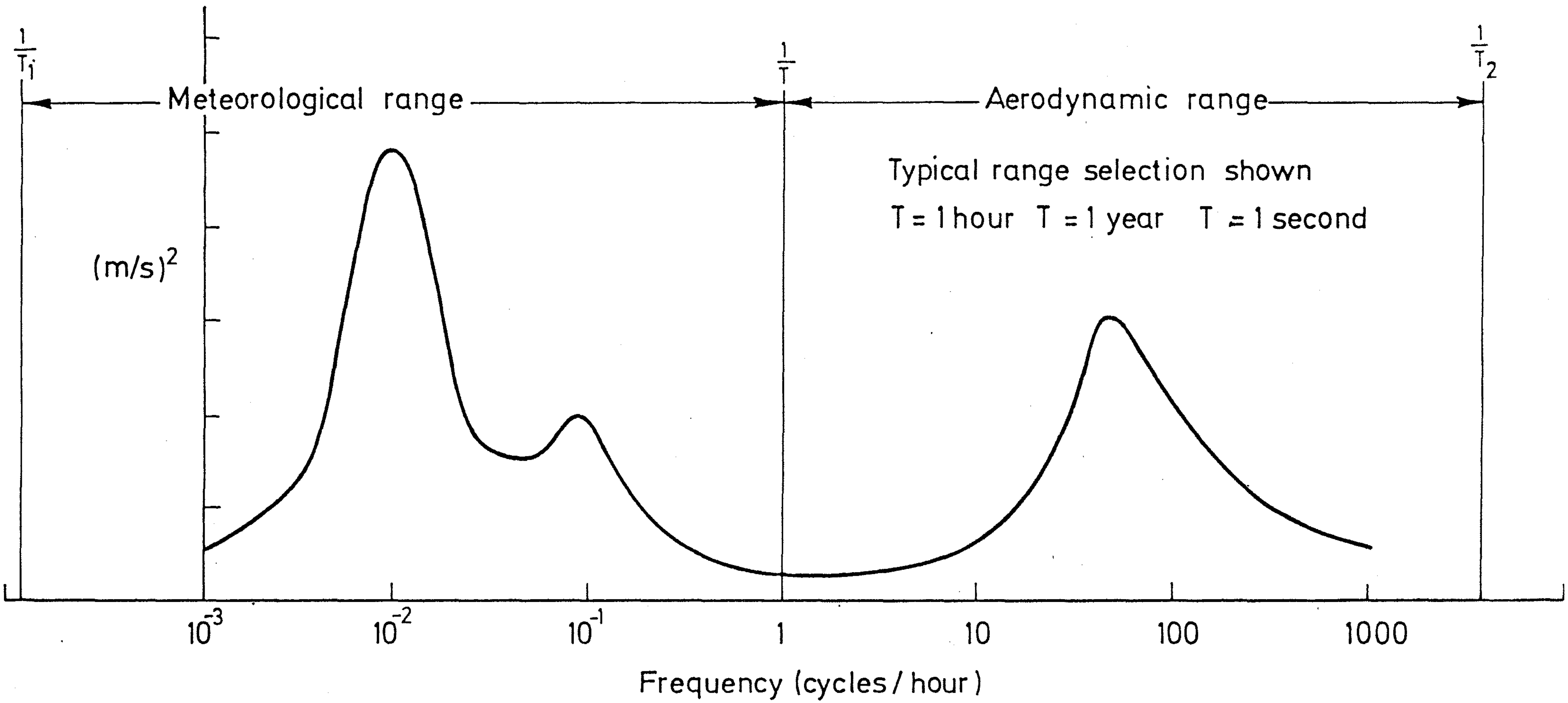

FIGURE 1

Van der Hoven Wind Spectrum

taken as one year (see Figure 1).

When the wind is strong, the fluctuations in the high frequency section of the spectrum have a purely aerodynamic, rather than a meteorological origin. They arise from the turbulent structure of the terrestrial boundary layer as it flows over the local terrain, including the building or other feature for which the prediction is desired. Although there is no obviously defined upper limit to the frequencies which may occur in this flow, it is usual to restrict attention to those frequencies which are of practical interest in terms of the size or mechanical response characteristics of the structure (or of the measuring instrument of course!). This is done by sampling at such a rate that the signal represented is effectively averaged over a short period T_2 (see Appendix B).

To separate this exclusively aerodynamic information from the meteorological component, the convenient properties of the Van der Hoven spectrum may again be invoked, and a high-pass filter specified, with a cut-off designed again to operate within the low-energy spectral gap. The use of a conventional filter has one drawback however, in that the mean value of the aerodynamic component is also eliminated so that essential information on absolute values is destroyed. It is preferable therefore to use an unfiltered signal and simply choose instead a period T, equal to that chosen for the meteorological averaging time, as the total observation period for the aerodynamic experiment.

If T corresponds to a frequency safely within the spectral gap, then the predominant meteorological variations have a period much larger than T. Thus it is to be expected, during the whole aerodynamic trial, that the meteorological wind speed will remain approximately constant. As a result, there is associated with each aerodynamic trial a single value of the meteorological mean wind speed V.

The fact remains however that the reference wind speed will take different values for different aerodynamic trials. Consequently it is necessary to observe the rules of dynamical similarity in order to define an aerodynamic variate which is independent of these velocity changes.

If such trials involve the measurement of a fluctuating pressure difference $\Delta p(t)$, a fluctuating force $F(t)$ or a fluctuating local velocity $v(t)$ associated with a structure of size D_{str}, then for strong winds, dimensional analysis leads us to expect a relationship of the general form

$$0 = f\left\{C_p(t), C_F(t), C_v(t), Re, \frac{VT_1}{D_{str}}, \frac{VT}{D_{str}}, \frac{VT_2}{D_{str}}, \phi(Z)\right\} \qquad (1)$$

where the three alternative dimensionless variables are defined by

$$C_p(t) = \Delta P(t)/q$$

$$C_F(t) = F(t)/q(D_{str})^2$$

$$C_v(t) = v(t)/V$$

using

$$q = \tfrac{1}{2}\rho V^2$$

The nominal wind speed V controls the value of the Reynolds number as an independent variable defined by

$$Re = \rho V D_{str}/\mu$$

Fortunately this exerts only a very weak influence in most architectural aerodynamics problems, where the flow is dominated not by boundary layer separation characteristics but by the effect of sharp corners causing fully separated flows. Thus the inevitable inequalities in Reynolds number between trials can be tolerated whilst retaining the expectation that C_p, C_F and C_v will be statistically independent of the meteorological wind speed V.

The function $\phi(Z)$ is inserted in the function parameter list with the definition

$$Z = z/D_{str}$$

to represent the general requirement that the onset wind flow should be correctly modelled at every vertical level z at the prescribed model scale. Defining $\phi(Z)$ more specifically we might include the more obviously important wind characteristics by writing

$$\phi(Z) = \phi\left\{\frac{\bar{U}(z)}{V}, \frac{\sigma_u(z)}{V}, S\left[\frac{n\ {}^{x}L_u}{V}\right], \frac{{}^{x}L_u(z)}{D_{str}}\right\}$$

where $\bar{U}(z)$ represents the mean velocity profile, $\sigma_u(z)$ the turbulence intensity profile and $S\left[\frac{n\ {}^{x}L_u}{V}\right]$, the power spectral density, a function of the frequency n. ${}^{x}L_u$ is a representative integral length scale in the turbulence, whose relationship to the structure size must be controlled by matching values of the parameter ${}^{x}L_u/D_{str}$.

Greenway (1978a) has illustrated very clearly the importance of a complete matching of these three parameters between trials if extreme velocity measurements are to yield meaningful results, and Part I of this report (Greenway and Wood 1977) shows the extent to which this matching has been achieved in the present 1/75th scale wind simulation.

Also emphasised by Greenway (1978a) is the importance in extreme value measurements of the correct choice of observation and averaging times T, T_1 and T_2. These appear as Strouhal numbers in equation (1). For example, if the Strouhal number equality requirement were applied strictly to the full-scale measurements of Eaton and Mayne (1974), it could be objected for example that the 2 second averaging time (T_2) in trial A7, where V = 11.9 m/s does not correspond to the 2 second averaging time in trial A32 where V = 14.3 m/s. Likewise, the present attempt to compare wind tunnel estimates of extreme pressure with both A7 and A32 is strictly invalid since the present wind tunnel observation and averaging times are chosen to give strouhal number equality with record A32 only.

These imperfections of dynamical similarity are mentioned here in order to highlight some of the problems associated with the design of a bivariate experiment in which the meteorological variate V(or q) and the aerodynamic variate C_p, C_F and C_v exist as genuinely independent statistical quantities.

2.2 Joint Probability Analysis

Because they are statistical variates, the assignment of values to any of the quantities discussed above, involves not just a single measurement but many trials leading to a statement of the probability associated with a given value. Thus in general, if the symbol λ stands for any one of the variates F, ΔP, v, V, C_F, C_p, C_v, then we define the probability function $F_\lambda(r_\lambda)$ as the probability that a single sample will not surpass a chosen level r_λ. The corresponding probability distribution $f_\lambda(r_\lambda)$ ($= dF_\lambda(r_\lambda)/dr_\lambda$) describes the probability $f_\lambda(r_\lambda)dr_\lambda$ that a single sample λ will fall within the narrow band $r_\lambda < \lambda < r_\lambda + dr_\lambda$.

The ultimate aim of the analysis is of course to determine the probability functions for F or ΔP or v, recognising that these are affected not only by the aerodynamic variations of the corresponding coefficients, but also by the meteorological variations in the wind speed V. In each case the aerodynamic coefficient, as defined, has been shown to be independent of the meteorological wind speed V or of the associated dynamic pressure q.

By virtue of this independence*, if we consider for example the pressure relationship, which is relevant to the present work,

$$\Delta P = C_p \, q$$

we may describe the joint probability that both $r_c < C_p < r_c + dr_c$ and also $r_q < q < r_q + dr_q$ by the product of the two individual probabilities

$$f_{cq}(r_c,r_q)dr_c dr_q = f_c(r_c)dr_c \, f_q(r_q)dr_q$$

i.e.

$$f_{cq}(r_c,r_q) = f_c(r_c) \, f_q(r_q) \qquad (2)$$

If these equations are represented on a joint probability diagram as shown in Fig.2 then the joint probability density $f_{cq}(r_c,r_q)$ represents

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* For a justification see for example Newland, D.E., "Random Vibrations and Spectral Analysis" (Longmans 1975).

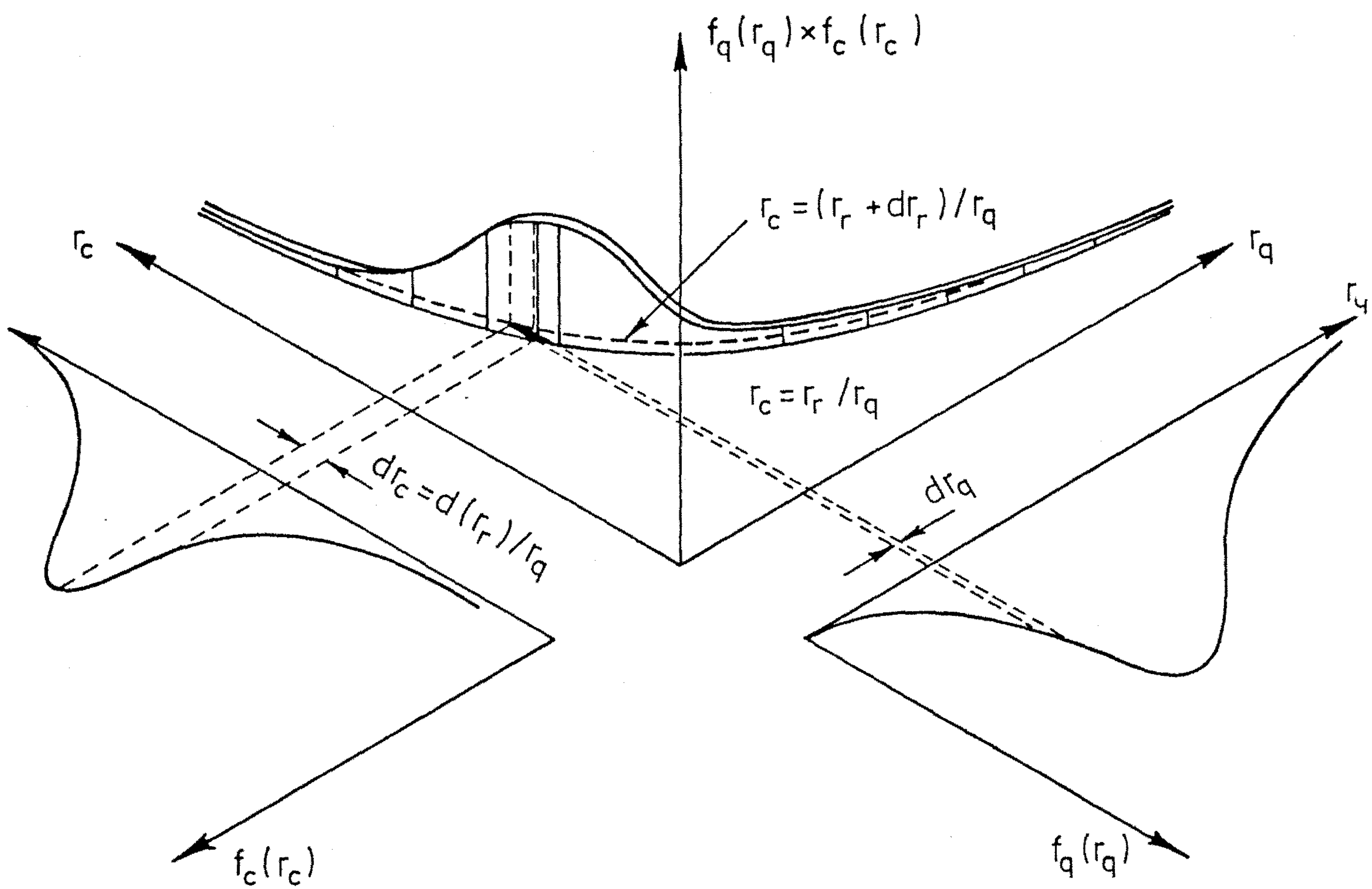

FIGURE 2

Diagram of Joint Probability Integration the height or volume per unit area at the coordinate position r_c, r_q of a solid figure standing upon the r_c-r_q plane. In these coordinates, each point r_c, r_q also represents a value r_r of the pressure ΔP defined by

$$r_r = r_c \, r_q$$

Conversely, if a fixed value r_r is chosen, then equation defines a curved line passing through all possible combinations of c_r and q which, if they occur simultaneously will yield the same value r_r for the pressure ΔP.

The probability distribution for ΔP must be defined therefore in terms of the probability $f_p(r_p)dr_p$ that ΔP will fall in the range $r_p < \Delta P < r_p + dr_p$ where this range includes all possible combinations of r_c and r_q falling between the lines

$$r_p = r_p/r_q$$

and $$r_c + dr_c = (r_p + dr_p)/r_q$$

as shown in Fig.2.

The spacing between these lines for any value of r_q is given by

$$dr_c = dr_p/r_q$$

so that the required probability, which is represented by the volume under the joint probability surface and bounded by the two lines is given by

$$f_p(r_p)dr_p = \int_0^\infty f_{cq}(r_p/r_q,\ r_q) \frac{dr_p}{r_q}\ dr_q$$

Substituting for f_{cq} from equation (2) thus yields the probability function for the pressure ΔP

$$f_p(r_p) = \int_0^\infty f_c\ (r_p/r_q)\ f_q(r_p) \frac{dr_q}{r_q} \tag{3}$$

while the probability function, obtained by a further integration over η, as a dummy variable representing r_p, is

$$F_p(r_p) = \int_{-\infty}^{r_p} f_p(\eta)\, d\eta$$

2.3 Extreme Values

The probabilities discussed above define the parent distribution in that they refer to the value of any single sample found during a whole observation period. However the question which is of fundamental importance in determining design criteria is not the probability of values throughout the possible range but rather the probability that a very large positive or negative value will occur. The probability of such extreme values is of course very low. It is defined by the tail of the present distribution but because of the very rare occurrence of samples in the tail region, that part of the distribution is inherently difficult to define accurately.

A single observation period is quite insufficient. To find an adequate number of samples falling in the extreme region a large number of observation periods would be required and the amount of unwanted information collected would be very great. For this reason it is usual to reject most of the sampled data and to record only the single largest (or smallest) value found during each observation period, (e.g., the annual maximum mean hourly wind speed).

If during such a period of length t_o, independent samples of the random variable λ have been collected at regular intervals t_s, then the extreme value thus defined is the largest (or smallest) of a collection of n independent samples where

$$n = t_o/t_s$$

The probability $F_\lambda(n,r_\lambda)$ that this single extreme value of λ does not exceed a given level r_λ is identical to the probability that every one of the parent collection of n samples will be less than r_λ. Thus provided that the n samples are all independent, the extreme value probability function is related to the (now undetermined) parent probability function by the equation

$$F_\lambda(n,r_\lambda) = F_\lambda(r_\lambda)^n \tag{5}$$

while the corresponding extreme value probability distribution $f_\lambda(r_\lambda)$ is given by

$$f_\lambda(n,r_\lambda) = n\, F_\lambda(r_\lambda)^{n-1}\, f_\lambda(r_\lambda) \tag{6}$$

In an experimental situation where the aim is to determine the extreme value probabilities, whilst rejecting the large bulk of data required for the parent probabilities, these equations are of no value of course. Instead the extreme probability function $F_\lambda(n,r_\lambda)$ may be estimated by the method of Gumbel (1954) or alternatively by the method of Lieblein (1974). These methods are described in detail and compared in practical application by the authors in another paper (Greenway and Wood 1978).

To illustrate the present discussion as an example, Gumbel uses the equation

$$F_\lambda(r_j) = J\ /\ (M + 1) \tag{7}$$

to estimate approximately the probability that, in a size-ordered list of M extreme values from M separate trials, the value r_j of the J^{th} element will not be surpassed in a single future trial. This estimator, taken together with the experimentally determined extreme values from M trials, defines an estimate of the extreme value probability function in which it is noted that N no longer appears explicitly, although it is still implied so that

$$F_\lambda(r_\gamma) \approx F_\lambda(n,r_\lambda)$$

When presenting extreme value probability data, it is convenient to observe that many naturally occurring variates have extreme value probability functions which approximate very closely to the form

$$F_\lambda(n,r_\lambda) = \exp\{-\exp(-Y_\lambda)\} \tag{8}$$

where
$$Y_\lambda = (r_\lambda - u_\lambda) / b_\lambda \tag{9}$$

Thus, after ascertaining that such a relationship holds for the variate under investigation, it is sufficient merely to determine and present numerical values for the mode u_λ and for the dispersion b_λ.

In terms of these constants, the associated extreme probability distribution may be written as

$$f_\lambda(n,r_\lambda) = \exp\{-\exp(-Y_\lambda)\} \quad \exp(-Y_\lambda) / b_\lambda \tag{10}$$

This relationship, illustrated in Fig. 3, is known as the Fisher-Tippett Type 1 distribution (Fisher and Tippett 1928).

Applying this analysis to the present problem of extreme pressure estimation we consider again the pressure relationship

$$\Delta P = C_p \quad q$$

It is assumed that the dynamic pressure q of the meteorological reference wind speed is sampled n_1 times at intervals T during an observation period T_1 (see Fig. 1) where

$$n_1 = T_1 / T \tag{11}$$

If this sampling rate is continued for a total of n_1 successive observation periods, then there will be sufficient data to define not only the parent probability function $F_q(r_q)$ and distribution $f_q(r_q)$ but also, by selecting the largest value of q from each of the n_1 observation periods, to find the extreme value probabilities $F_q(n_1, r_q)$, $f_q(n_1, r_q)$ where as shown earlier

$$F_q(n_1, r_q) = F_q(r_q)^{n_1} \tag{12}$$

If an adequately large number n_1 of meteorological trials is to be taken into account, then with a one-year observation period T_1 the meteorological experiment is of necessity a very long one. For all practical purposes therefore it is necessary to rely totally on existing meteorological records and considerable efforts have been and are being made to extract extreme value data in an appropriate form, e.g. E.S.D.U.(1972).

Taking the same steps for the analysis of the pressure coefficient C_p we assume that n_2 independent samples are collected at intervals T_2 during an observation period T (see Fig. 1) so that

$$n_2 = T / T_2 \tag{13}$$

Again, in order to collect sufficient data for an extreme value probability analysis as well as for the parent, we continue the aerodynamic experiment for a total of n_2 observation periods and thus obtain $F_c(r_c)$ and its derivative $f_c(r_c)$ together with $F_c(n_2 r_c)$ and $f_c(n_2, r_c)$ where

$$F_c\,(n_2, r_c) = F_c\,(r_c)^{n2} \tag{14}$$

If conducted at full scale, the duration of the aerodynamic experiment is determined by T, which may be up to one hour and by the necessity to wait for a total of n_2 occurrences of a suitable wind. By contrast, the benefit of small-scale aerodynamic testing using a wind tunnel, and of the bivariate approach which makes this possible, is immediately apparent. In the present experiments the full-scale observation time of 17 minutes is reduced to 0.65 minutes so that a total of 16 aerodynamic trials could be completed in just over ten minutes.

If the bivariate method were not used and the pressure ΔP were sampled directly in an experiment which included both meteorological and aerodynamic effects, then the experiment would have to deal with information covering the whole frequency range from $1/T_1$ to $1/T_2$ shown in Fig. 1. Consequently the pressure would have to be sampled at full scale at intervals T_2 over an observation period T_1 and the number n of samples taken during each trial would be

T_1 / T_2

$= n_1 n_2$

parent probability distributions C_p and q,

equation may be used to define an extreme value function

$F_p(n,r_p)$ for the required pressure ΔP.

An alternative approach, which appears highly attractive, has been suggested by Cook and Mayne (1978). This avoids the use of the parent probability distributions by assuming that a valid approximation to the extreme pressure probability is given by integrating the joint-extreme probability distribution formed from the extreme distributions only for C_p and q.

In the present notation this is equivalent to the assumption that $f_p(n,r_p) \equiv f'_p(n,r_p)$ where

$$f'_p(n,r_p) = \int_o^\infty f_c(n_2, \frac{r_p}{r_q}) \quad f_q(n_1,r_q) \quad \frac{dr_q}{r_q} \qquad (17)$$

when $n = n_1 n_2$

A number of analytical counter-examples may be cited (Wood 1978) to show that equation 17 is not generally valid. On a more practical level, a little reflection shows that it ignores possible contributions to the extreme pressure probability distribution by pressures occurring during periods other than the worst hour of wind in any year.

A statement which is precisely correct in relation to equation 17 is that $f'_p(n,r_p)$ describes the probability distribution for the extreme pressure found <u>during the extreme wind period</u> in any year.

This in itself is a more valuable variate than the deterministic pressure-coefficients based upon extreme gust velocities which are currently in use in the Codes of Practice. Also, such is the attractiveness of the simple joint-extreme probability analysis that it is to be hoped that further research will lead to improvements in this approximation rather than its abandonment. For this reason, the present extreme pressure coefficient data is described in mode-dispersion notation in order than it may be applied readily to the joint-extreme method of prediction.

3. EXPERIMENTAL PROCEDURE

3.1 Frequency Response Check

For the mean pressure measurements described in Part 1, the Disa pressure transducers were connected through a 48 port, type D Scanivalve and approximately 0.3 metres of standard 1.5 mm Scanivalve tubing to the surface pressure tappings on the models. The main problems to be overcome at that time were the zero-drift of the transducers and the effect of unwanted tunnel pressure gradients.

In contrast, these effects are of no importance in relation to fluctuating component measurements because they are removed, with the mean signal, by the use of a high pass filter. Instead, the primary experimental problem becomes the frequency response, not of the pressure transducers which is more than adequate, but primarily of the necessary tube connections linking the transducer to the surface pressure tappings.

Using a cross-spectral analysis programme written for the PDP 11 computer by Greenway (1978 b) a frequency response test was made by computing and plotting the transfer functions of the two tube systems used. This was achieved by comparing the power-spectral density function of the signal from the operating transducer with that from a reference transducer connected directly to an almost coincident pressure tapping.

The frequency range of the transfer functions was limited by the use of a low-pass filter set with a 3 d.B. cut off frequency of 125 Hz. This corresponds to approximately 5 Hz at full-scale for a wind speed of 14 m/s at the present nominal tunnel speed of 5 m/s. It seems unlikely in relation to the known limitations of the full-scale experiments that consideration of frequencies higher than this, would be meaningful and in most of the experiments described below, a filter setting of 100 Hz was used. The implication of this limitation in relation to extreme value analysis is more complicated and is discussed later.

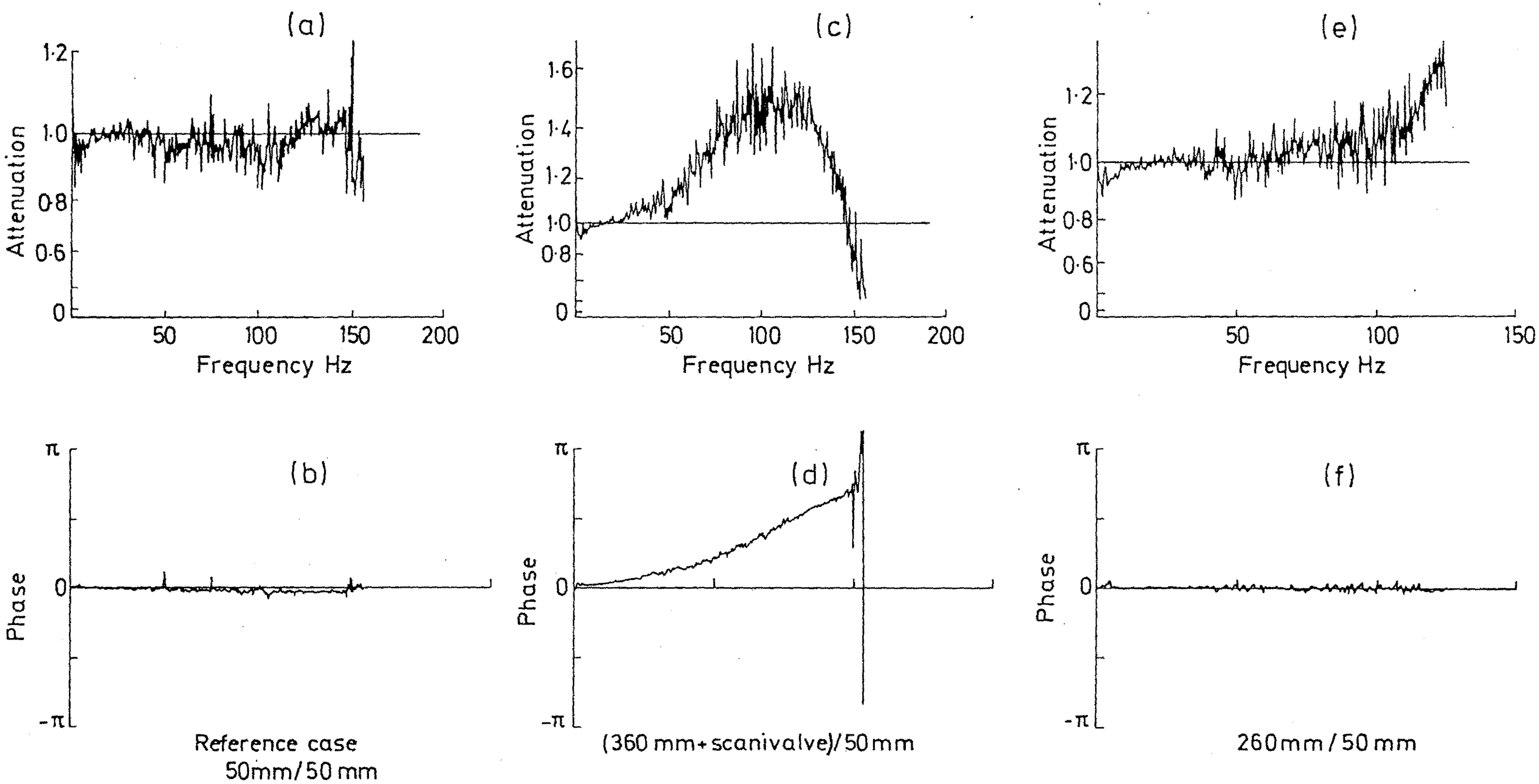

Figure 4
Transfer functions for tube connections.

The results of the transfer function check are shown in Fig. 4 (a) to (f). Diagrams (a) and (b) show the application of the technique to a reference system in which both pressure transducers were connected identically with a minimal tube length of 50 mm. For this case the two signals should be identical and both the magnitude (a) and the phase (b) show only minor deviations from their expected values of unity and zero respectively.

The second tube system tested was approximately the same as that used for the mean pressure and variance measurements and also for extreme value analysis. This comprised 260 mm of tubing between the surface tapping and the Scanivalve, followed by a further 100 mm linking the Scanivalve to the transducer. This short length was for vibration isolation, see part I.

For this case it is clear from (c) and (d) that the tubing amplifies the pressure signal by a factor of approximately 1.4 near the upper limit of the frequency band. This is exaggerated in Fig. 4 by the linear frequency scale. In fact the distortion affects only a small portion of the spectrum where there is very little energy, so that the consequent error in the variance (i.e. in the area under the whole spectrum) will be small.

The information provided by the transfer function makes it possible of course to adjust the values of the variance and also the shape of the power-spectral density plots (e.g. Figures 11 and 12) if desired. This adjustment has not been made. It is not possible to make a quantitative estimate of the effect on extreme pressure measurements but some qualitative indications are discussed.

The form of the transfer function suggests the existence of a tube resonance, damped by the restricted passages of the Scanivalve and having a natural frequency somewhat higher than the upper limit of the present range.

A similar indication of resonance, with less damping is also evident in the third tube system. (Diagrams (e) and (f)). This system was a simple connection using 260 mm of tubing with no Scanivalve. This type of connection was used for the present spectral analysis experiments. In this case the transfer function remains close to unity throughout most of the frequency range and only rises to 1.2 above 110 Hz.

As a consequence of these tests it was considered that the present measurements of R.M.S. pressures, pressure spectra and also extreme values for all but the shortest (0.2 sec) averaging times, could be accepted with reasonable confidence.

3.2 Measurement of R.M.S. Pressure Coefficients

The mean and R.M.S. pressure coefficients were evaluated at the same time by taking the first and second moments respectively of a probability distribution. This was generated and displayed by the computer in on-line mode using 128 intervals on the pressure scale into which 32768 instantaneous sample values were distributed as they were collected. The sampling interval was 3.1 ms and a 100 Hz low-pass filter was used. At 5 m/s nominal tunnel speed, the filter limited the full-scale equivalent frequency to about 4 Hz in the context of B.R.E. run A 32 (14.3 m/s).

For strict similarity between the wind-tunnel, and full-scale experiments the sampling interval and the total sample count should have been chosen to correspond in the same way to the 32 Hz, 17 minute full scale condition. Owing to an error, the correct choice was not made, but fortunately, in the context of a probability analysis in a stationary wind tunnel experiment, this does not matter.

3.3 Measurement of Power Spectral Density

The presentation of spectral information in large quantities was not regarded as an important objective of the present project. Thus, the criterion adopted in selecting pressure tappings for spectral analysis was simply the expectation that a power-spectral density plot might yeild some extra insight into the flow conditions in cases where other measurements had revealed unusual features.

The computational technique for producing pressure spectra was of course the same as that used for the velocity spectra in Part 1. It is based upon a standard Fast Fourier Transform routine modified by Greenway (1978 b) to incorporate an optional number of applications of the Hanning smoothing routine.

At this stage the transformation is not performed on-line. However, the data collection part of the programme is written to run interactively to help the operator to choose correctly the necessary parameters for the subsequent operation of the Fast Fourier Transform.

A fixed number (28 x 2048) of data values is collected for each case and stored on a disc file. The sampling interval for these is selected by the programme to give a sampling frequency of 2.4 times the upper frequency limit specified by the operator. This is 1.2 times the Nyquist frequency. Four alternative options are then offered (2048, 1024, 512 or 256) for the number of consecutive data values to be included in a single Fourier transform into the frequency domain. With the sampling interval already selected, this second choice fixes the lowest frequency covered by the spectrum. It also sets the integer number (28, 56, 112 or 224) for the number of independent repetitions of the transform and the number of individual spectra which will be averaged to yield the final result.

Table 1 lists the holes for which spectra were obtained. Some of these are reproduced to aid the discussion in this report. The remainder are available from the authors on request.

TABLE 1

Complete Index of Wind Tunnel Pressure Spectra

Except where otherwise stated the following conditions apply to all spectra:

Wind Direction	= 265° (BRE A7/A32)
Wind Speed	= 5.0 m/s ± 0.1 at 0.133 m (10 m)
No. of Points in FFT	= 2048
No. of Spectra averaged	= 28
No. of Hanning Smoothings	= 5
Lowest frequency	= 0.122 Hz
High-pass filter setting	= 0.244 Hz
Highest frequency	= 125 Hz
Low-pass filter setting	= 100 Hz

TEST HOUSE		ESTATE HOUSES	
Hole Code	S.P.C. File No.	Hole Code	S.P.C. File No.
WR1A	986	76WW2	022
WR1E	987	76WR2	023
WR3A	985	76ER2	024
WR3C	988	76EW1	025
WR4A	989	58WW2	031
WR4E	990	58WR2	032
ER1A	999	58ER2	033
"	010	58EW1	034
"	013	"	035
"	014 *	"	036 †
ER1B	992	47WW2	037
	015 *	47WR2	038
ER2A	993	47ER2	039
ER3A	994	47EW1	040
3WW3	995	33WW2	041
"	017	33WR2	042
3WW4	996	33ER2	043
3WW5	997	33EW1	044
5WW3	998	70SR2A	026
5WW7	999	70SR3A	027
3EW1	001	"	030 +
3EW3	002	70SR3B	028
"	018	"	029 +
5EW1	003	83SG2	019
3SW1	004	"	020
3SW2	005	82NG1B	021
3SW3	006		
3SW4	007		
3NW1	008		
3NW1	016 *		
3NW2	009		

Exceptions

* High pass filter frequency 0.05 Hz.

† Frequency range 0.031 Hz to 31.25 Hz.
Filter pass band 0.061 Hz to 25 Hz.

\+ Frequency range 0.244 Hz to 250 Hz.
Filter pass band 0.488 Hz to 200 Hz.

3.4 Measurement of Extreme Pressures

As the discussion in section 2 suggests, the approach to extreme value estimation in the present work represents an advance upon the methods previously applied to the Aylesbury site. Other investigators, constrained by limitations on tunnel running time, have felt obliged to be content with a determination of high quantile values from probability distributions which may not be adequately defined for the purpose. Alternatively, they have accepted, as deterministic single-sample extremes, the highest observed values from their experiments, (e.g. Eaton & Mayne 1974, Bray 1977, Apperley 1978).

However, the present authors, sharing the growing conviction of Cook and Mayne (1928) that a more positive approach is required despite despite the cost, have devoted a large amount of tunnel time in the present project to the formally correct assessment of extreme pressure coefficients in terms of their estimated probability functions.

The method, advocated by Gumbel (1954) has been subsequently refined as an efficient numerical procedure by Lieblein (1974, 1975) for cases involving Fisher-Tippett Type 1 distributions. A fairly detailed and elementary examination of the two methods was carried out (Greenway & Wood 1978) and as a result it was decided to incorporate the Lieblein algorithm into an extreme value analysis programme designed to estimate the mode and the dispersion (see Fig. 3) of the extreme value probability functions associated with each surface pressure tapping.

In order to satisfy the similarity requirements (eq. 1) in respect of the B.R.E. full scale data, the extreme value analysis programme incorporated a routine to sample first the pitot and static holes of a pitot-static tube set at the anemometer mast site. By means of a simple summation averaging procedure, a nominal value was obtained for the mean dynamic pressure and ence of the nominal mean velocity V. This value was then used by the rogramme to select a suitable sampling interval and observation time to orrespond to the 1/32 second interval and 17 minute period of the associated ull scale trial.

The calculation of equivalent times or frequencies involves a knowledge of the full scale nominal wind speed for each case* and also the assumption that not only the ratio of the physical length scales, but also the ratio of the turbulence length scales was 1/75. (See eq. 1).

The results of this procedure may be seen in the data tables of Appendix A. In both the full scale (B.R.E.) experiments and the present wind tunnel tests, the pressures used were not instantaneous but short-term averages over 16, 4, 2 and sometimes 0.2 seconds. This was achieved by averaging a finite number of data samples. This technique, and its relationship to the equivalent use of an analogue filter is discussed in detail by Greenway in Appendix B.

Having determined the necessary operating parameters, the programme was left to control the remainder of the experiment automatically. After selecting each new pressure tapping through the Scanivalve, the programme caused sixteen repetitions of the basic trial, producing sixteen highest values and sixteen lowest values for the pressure coefficient for each averaging time. The short term averages were calculated on a running basis which produced a new average value for each new data sample. Thus each extreme value finally selected was the largest (or smallest) of a set of values almost equal in number to the total number of samples in the trial.

The final data reduction, and the tabulations assembled in Appendix A were carried out after the completion of the experiment by a separate programme, using the Lieblein (1975) algorithm whose choice has been discussed above.

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* In one case, two full scale trials (A7 and A32) having different wind speeds, both contribute to the same data set. The model equivalence in this case was chosen arbitrarily and based upon the A32 wind speed.

After rearranging the 16 samples in descending order of magnitude (ascending order for lowest extremes) Lieblein's estimator is used to assign to each sample a probability that the value of that sample will not be surpassed in a single future trial.

By plotting these sample values with their estimated probabilities, it is possible to test whether the data is a good fit to the Fisher-Tippett Type 1 form (equations 8 and 9). Figure 5 shows such a test plot taken from Greenway and Wood (1978) which also compares the results of the Lieblein method used here with the older, approximate method of Gumbel.

Not all the data was tested in this way. Instead the tabulated values for the mode and dispersion were simply accepted. They are listed in full in Appendix A.

3.5 Variable Roof-Pitch Experiment

The measurements described above were first carried out on the test house and on the estate houses for the A7/A32 wind direction ($\Theta=265^{\circ}$). This was to complete the set of experiments which began with the mean pressure measurement of Part 1.

Following the completion of the A7/A32 tests, a new model of the test house was constructed. This included the roof overhang extension added by Eaton and Mayne (1974) and provided for four interchangeable roofs with pitch angles of 5°, 10°, 15° and $22\frac{1}{2}^{\circ}$.

Using this model, a further complete set of measurements was made for wind directions of 233° (and in one case 248°) corresponding to the full-scale conditions found in runs A38-C (5°Pitch), A38-B (10°), A38-A (15°) and A38-G ($22\frac{1}{2}^{\circ}$). The original layout of the estate model, described in Part 1, placed the test house rather close to the edge of the turntable. Consequently, on turning to the A38 wind direction it was found to approach the tunnel wall.

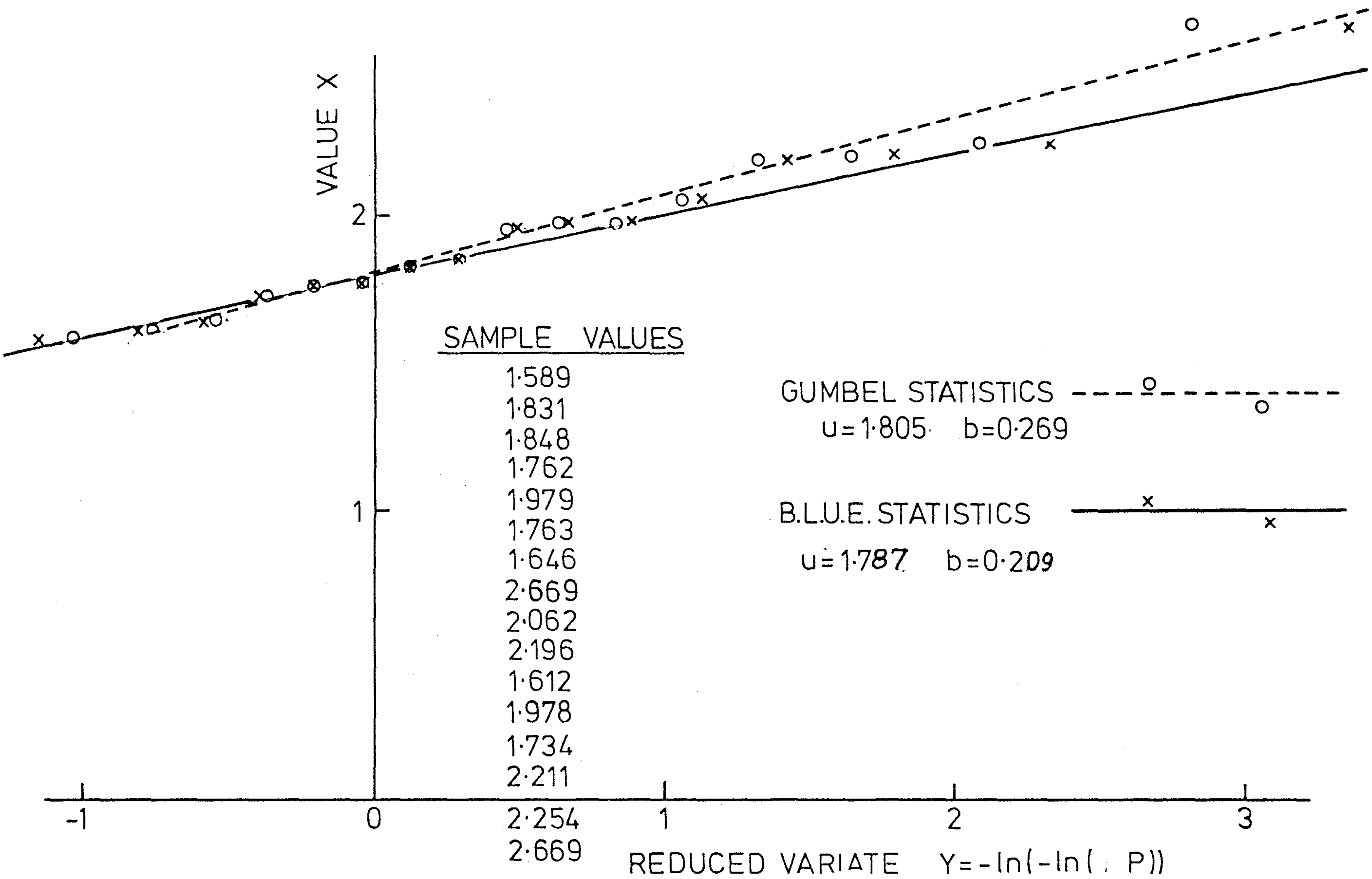

Figure 5

Comparison of Gumbel and B.L.U.E. extreme probability distributions for 16 sample values relating to hole 5WW5 A

To avoid any wall proximity problems, the whole model was remounted for these tests in order to place the test house near the turntable centre. This left room for the simulated hedges and

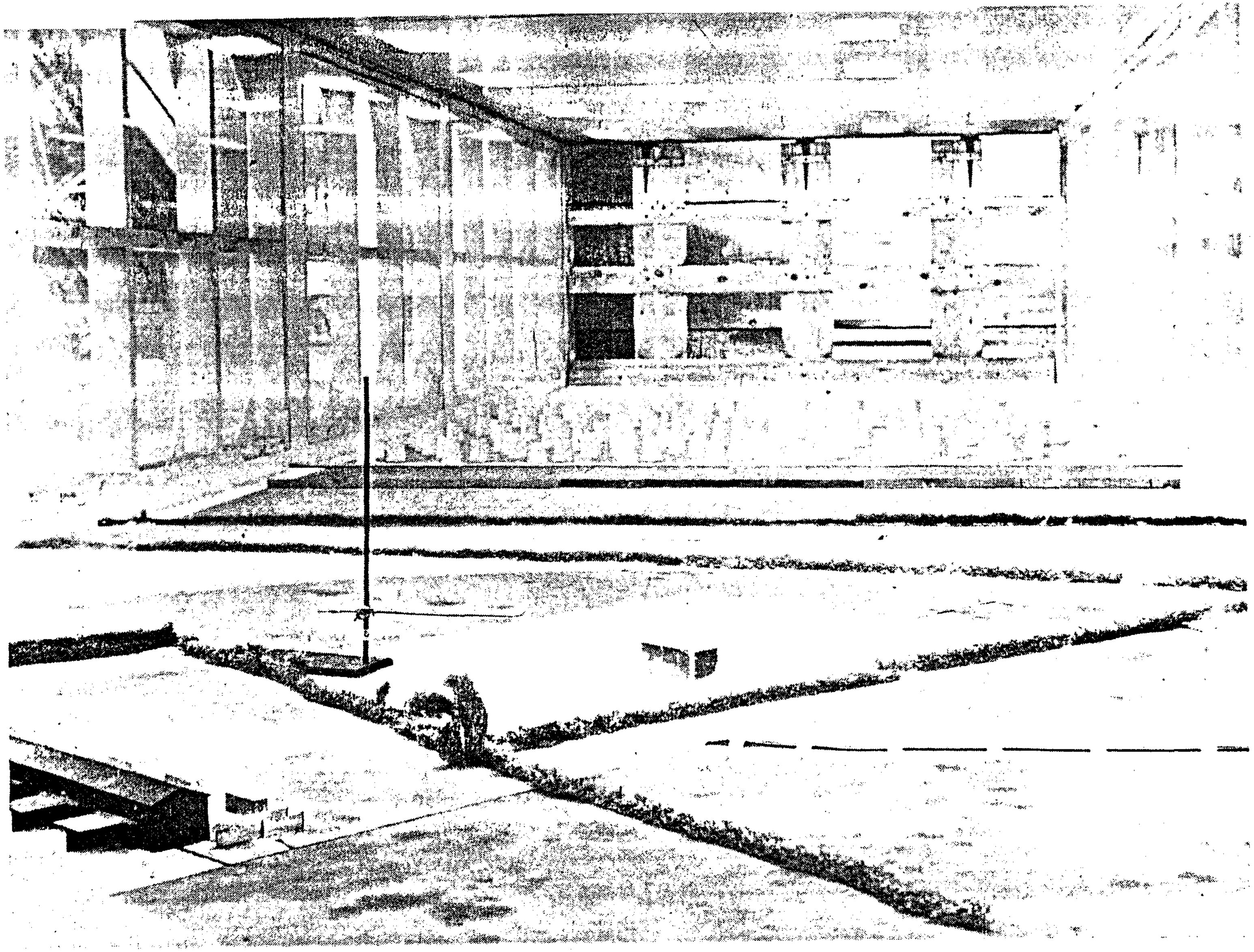

Figure 6a

LAYOUT OF VARIABLE ROOF PITCH MODEL LOOKING UPSTREAM.

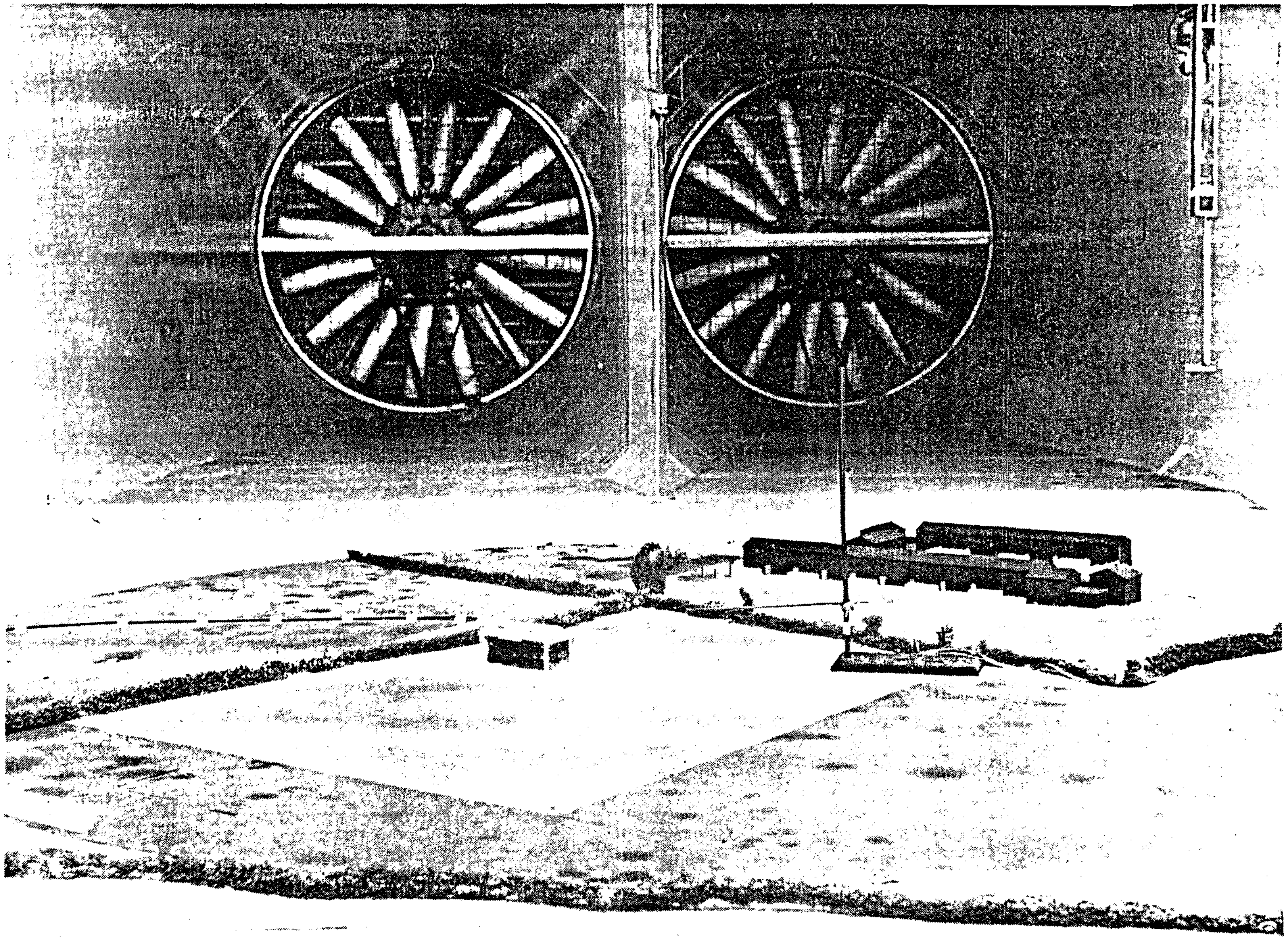

Figure 6b
LAYOUT OF VARIABLE ROOF PITCH MODEL LOOKING DOWNSTREAM.

4. TABULATED DATA

The data presented in this chapter is arranged as far as possible to facilitate direct comparisons not only with the B.R.E. full scale data, but also with the published results of other wind tunnel studies. Listings of mean pressure coefficients are included for completeness although these have been presented and discussed already for the A7/A32 case in Part 1. The amount of material is large. Therefore an index table is provided below in an attempt to simplify the task of searching for particular results.

The basis of comparison of the mean pressure coefficient data has already been discussed in Part 1 and reference should be made to chapter 7 of that report. The Oxford data listed here differs from that in Part 1 Tables 2 and 3 in that the estimated pressure gradient corrections for Part 1 Table 5 have been applied.

The R.M.S. pressure coefficient data is compared directly without adjustment.

In order to compare extreme value data it has to be recognised that the currently published B.R.E. data and also the data from the University of Western Ontario (U.W.O.) contains single sample extremes only. The B.R.E. data relates to a 17 minute observation period, while the U.W.O. data was sampled over a longer equivalent time. A comparison with the present mode values is possible of course, but it was felt that a more obviously cautious comparison is made by quoting the Oxford data in the form of upper and lower bounds deferred by u + 4.60 b and u - 1.527 b respectively. A description using both the mode and the dispersion in this way gives the 0.99 and 0.01 quantiles of the extreme value probability function. Thus it is to be expected (with 98% probability) that any single sample extreme recorded under statistically similar conditions (which the U.W.O. data is not), should fall between the two bounds.

The range of values permitted by this approach is wide and serves to emphasise that any conclusions drawn from a comparison of extreme values must be highly tentative.

Bearing in mind that extreme pressures, like mean pressures, are datum-dependant, and recognising that great difficulty has already been experienced (see Part 1) in assessing and eliminating correctly the various datum errors, absolute values of extreme pressure coefficients have not been compared. Instead the difference between the extreme and the mean has been used in every case, thus eliminating datum error problems. The B.R.E. data had to be adjusted here because of the different dynamic pressure values used in forming the two coefficients. (Eaton and Mayne 1974). Also, since an extreme value is merely part of the general description of a probability function, it was decided to harmonise the present presentation with the classical dimensionless description of probability functions (e.g. Gaussian) and scale the values in relation to the standard deviation. Thus the use is justified of a peak pressure factor described in terms of a reduced mode u' and a reduced dispersion b' defined on the tabulation sheets by

$$u' = (u - \mu) / \sigma$$

$$b' = b / \sigma$$

This reduced coefficient formulation corresponds exactly with that used by Bray (1977) to produce the Bristol single sample extreme data so that his tabulations could be used directly. The corresponding reduced values for the U.W.O. extremes were computed by the present values from the data published by Apperley et al (1978). In this context it should be mentioned that the

U.W.O. pressure tappings did not correspond to the B.R.E. transducer positions and some rough interpolation 'by eye' has been carried out.

Extreme values are presented and compared only for 2-second averaged pressures. Unreduced mode and dispersion values for averaging times of 0.2, 4 and 16 seconds are included in Appendix A. The effect of averaging time and also of observation time is discussed further in Part III of this report.

CONTENTS LIST FOR COMPARATIVE RESULTS TABLES - TABLE 2

Page	CONTENTS	SOURCE OF DATA INCLUDED				
		B.R.E.	OXFORD	BRISTOL	U.W.O.	J.C.U.N.Q
	ESTATE HOUSES $\Theta=265^{\circ}$				(Estimated Interpolation)	
30	Mean and R.M.S.	A7	x	x		
31	Lowest extremes		x			
32	Highest extremes		x			
33	Peak pressure factors	A7	x	x		
	TEST HOUSE WALLS $\Theta=265^{\circ}$, Pitch $22\frac{1}{2}^{\circ}$					
34	Mean and R.M.S.	A32	x		x	x
35	Lowest extremes		x			
36	Highest extremes		x			
37	Peak pressure factors	A32	x		x	
	TEST HOUSE ROOF $\Theta=265^{\circ}$, Pitch $22\frac{1}{2}^{\circ}$					
38	Mean and R.M.S.	A32	x		x	
39	Lowest extremes		x			
40	Highest extremes		x			
41	Peak pressure factors	A32	x		x	
	TEST HOUSE WALLS $\Theta=233^{\circ}$, Variable Pitch					
42	Mean and R.M.S. 5°	A38-C	x		x	
43	" " " 10°	A38-B	x			
44	" " " 15°	A38-A	x			
45	" " " $22\frac{1}{2}^{\circ}$ (248°)	A38-G	x		x	
46	Lowest extremes 5°		x			
47	" " 10°		x			
48	" " 15°		x			
49	" " $22\frac{1}{2}^{\circ}$ (248°)		x			
50	" " $22\frac{1}{2}^{\circ}$ (238°)		x			

/continued .....

Table 2 (cont'd.)

Page	CONTENTS	SOURCE OF DATA INCLUDED				
		B.R.E.	OXFORD	BRISTOL	U.W.O.	J.C.U.N.Q.
	<u>TEST HOUSE WALLS $\Theta=233^{o}$, Variable Pitch</u>					
51	Highest extremes 5^{o}		x			
52	" " 10^{o}		x			
53	" " 15^{o}		x			
54	" " $22\frac{1}{2}^{o}$ (248^{o})		x			
55	" " $22\frac{1}{2}^{o}$ (233^{o})		x			
56	Peak pressure factors 5^{o}	A38-C			x	
57	" " " 10^{o}	A38-B	x			
58	" " " 15^{o}	A38-A	x			
59	" " " $22\frac{1}{2}^{o}$ (248^{o})	A38-G	x		x	
	<u>TEST HOUSE ROOF $\Theta=233^{o}$, Variable Pitch</u>					
60	Mean and R.M.S. 5^{o}	A38-C	x		x	
61	" " " 10^{o}	A38-B	x			
62	" " " 15^{o}	A38-A	x			
63	" " " $22\frac{1}{2}^{o}$ (248^{o})	A38-G	x		x	
64	Lowest extremes 5^{o}		x			
65	" " 10^{o}		x			
66	" " 15^{o}		x			
67	" " $22\frac{1}{2}^{o}$ (248^{o})		x			
68	" " $22\frac{1}{2}^{o}$ (233^{o})		x			
69	Highest extremes 5^{o}		x			
70	" " 10^{o}		x			
71	" " 15^{o}		x			
72	" " $22\frac{1}{2}^{o}$ (248^{o})		x			
73	" " $22\frac{1}{2}^{o}$ (233^{o})		x			
74	Peak pressure factors 5^{o}	A38-C	x		x	
75	" " " 10^{o}	A38-B	x			
76	" " " 15^{o}	A38-A	x			
77	" " " $22\frac{1}{2}^{o}$ (248^{o})	A38-G	x		x	

COMPARATIVE DATA FOR AYLESBURY ESTATE HOUSES

QUANTITY RECORDED WIND ANGLE θ 265° BRE. EQUIVALENT RUN A7

	MEAN PRESSURE COEFFICIENTS			R.M.S. PRESSURE COEFFICIENTS		
	B.R.E A7	OXFORD (corrected for pressure gradient)	BRISTOL from Part I Table 2A	B.R.E. A7	OXFORD	BRISTOL
33EW1	-0.12	-0.34	-0.33	0.10	0.11	0.13
33ER1	+0.13	-0.54	-0.43	0.21	0.18	0.17
33ER2	-0.03	-0.56	-0.45	0.26	0.20	0.19
33WR2	-0.07	-0.15	-0.35	0.14	0.18	0.14
33WR1	+0.24	-0.12	+0.05	0.20	0.24	0.18
33WW2	+0.21	-0.02	0.00	0.20	0.22	0.23
33WW1	+0.24	-0.03	-0.05	0.17	0.21	0.21
47EW1	-0.10	-0.32	-0.30	0.08	0.11	0.13
47ER1	-0.13	-0.49	-0.45	0.12	0.17	0.16
47ER2	-0.12	-0.50	-0.45	0.12	0.17	0.16
47WR2	+0.07	-0.19	-0.35	0.09	0.15	0.14
47WR1	+0.08	-0.21	-0.15	0.14	0.21	0.17
47WW2	+0.15	+0.02	0.00	0.17	0.22	0.22
47WW1	+0.09	-0.02	-0.05	0.14	0.18	0.19
58EW1	+0.09	-0.25	-0.30	0.10	0.10	0.14
58ER1	0.00	-0.39	-0.40	0.13	0.17	0.16
58ER2	-0.14	-0.45	-0.45	0.16	0.19	0.18
58WR2	+0.19	-0.22	-0.35	0.17	0.17	0.19
58WR1	+0.10	-0.23	-0.35	0.17	0.23	0.20
58WW2	-0.01	-0.33	-0.43	0.03	0.23	0.20
58WW1	+0.15	-0.34	-0.40	0.17	0.17	0.18
70SR2A	-0.36	-0.76	-0.75	0.28	0.27	0.26
70NR1	-0.23	-0.84	-0.71	0.27	0.26	0.26
70SR1A	-0.50	-1.26	-0.97	0.29	0.42	0.30
70SR3A	-0.54	-1.10	-1.01	0.42	0.31	0.30
70NR2A		-1.05			0.27	
70SR2B	+0.43	-0.34	-0.63	0.15	0.11	0.18
70SR1B	-0.23	-0.44	-0.67	0.16	0.16	0.18
70SR3B	+0.07	-0.46	-0.15	0.07	0.18	0.30
70NR2B		-0.55			0.19	0.28
70WG1	+0.80	+0.45	+0.13	0.36	0.35	0.15
76EW1	-0.13	-0.45	-0.50	0.14	0.13	0.13
76ER1	-0.07	-0.56	-0.50	0.17	0.16	0.15
76ER2	+0.02	-0.55	-0.23	0.16	0.14	0.16
76WR2	-0.06	-0.27	-0.33	0.10	0.13	0.16
76WR1		-0.49			0.26	
76WW2	+0.54	+0.23	+0.05	0.26	0.27	0.25
76WW1		+0.15				
82NG1A	-0.05	-0.54	-0.55	0.13	0.13	0.13
82NG2	-0.03	-0.58	-0.60	0.17	0.16	0.12
82NG1B	+0.07	-0.74	-0.75	0.37	0.29	0.24
83SG1B	-0.13	-0.61	-0.65	0.12	0.14	0.12
83SG2	-0.31	-0.62	-0.65	0.19	0.19	0.15
83SG1A	-0.59	-0.89	-0.95	0.26	0.32	0.25
MANHOLE	DATUM	DATUM	DATUM (Adjusted. See Part 1)	DATUM	DATUM	
10 m PITOT						
10 m STATIC						
30 m PITOT						
30 m STATIC						

COMPARATIVE DATA FOR AYLESBURY ESTATE HOUSES

QUANTITY RECORDED – LOWEST EXTREME (2 Sec Average ~ 17 min. observation) WIND ANGLE 265° BRE. EQUIVALENT RUN A7

	FROM PART I	CURRENT DATA FROM TABLES:-			REDUCED MODE AND DISPERSION		RANGE OF EXTREME DISTRIBUTION	
	Mean Cp μ	Cp Variance σ	Mode u	Dispersion d	$u' = \frac{u-\mu}{\sigma}$	$d' = \frac{d}{\sigma}$	$u'+4.600d'$ (F = 0.99)	$u'-1.527d'$ (F=0.01)
33EW1	-0.470 (?)	0.110	-0.888	-0.057	-3.79	-0.518	-6.17	-3.00
33ER1	-0.666 (?)	0.182	-1.411	-0.109	-4.09	-0.599	-6.85	-3.18
33ER2	-0.683	0.197	-1.570	-0.109	-4.51	-0.553	-7.06	-3.67
33WR2	-0.280	0.178	-0.754	-0.181	-2.67	-1.017	-7.35	-1.12
33WR1	-0.244	0.241	-0.883	-0.080	-2.66	-0.332	-4.19	-2.15
33WW2	-0.149	0.226	-0.641	-0.059	-2.18	-0.261	-3.38	-1.78
33WW1	-0.160	0.208	-0.685	-0.101	-2.52	-0.486	-4.75	-1.78
47EW1	-0.423	0.109	-0.866	-0.080	-4.07	-0.734	-7.45	-2.95
47ER1	-0.594	0.169	-1.376	-0.118	-4.64	-0.698	-7.85	-3.57
47ER2	-0.596	0.172	-1.344	-0.153	-4.35	-0.890	-8.44	-2.99
47WR2	-0.291	0.152	-0.774	-0.049	-3.18	-0.322	-4.66	-2.69
47WR1	-0.309	0.213	-0.965	-0.108	-3.08	-0.507	-5.41	-2.31
47WW2	-0.082	0.219	-0.502	-0.046	-1.92	-0.210	-2.89	-1.60
47WW1	-0.123	0.178	-0.515	-0.039	-2.21	-0.219	-3.22	-1.88
58EW1	-0.305	0.099	-0.607	-0.049	-3.07	-0.495	-5.35	-2.31
58ER1	-0.441	0.166	-1.115	-0.187	-4.06	-1.127	-9.24	-2.34
58ER2	-0.501	0.195	-1.288	-0.148	-4.04	-0.759	-7.53	-2.88
58WR2	-0.278	0.172	-0.702	-0.044	-2.47	-0.256	-3.65	-2.08
58WR1	-0.288	0.232	-0.764	-0.074	-2.05	-0.319	-3.52	-1.56
58WW2	-0.387	0.228	-0.953	-0.089	-2.48	-0.390	-4.73	-1.88
58WW1	-0.395	0.169	-0.855	-0.080	-2.72	-0.473	-4.90	-2.00
70SR2A	-0.785	0.270	-1.812	-0.186	-3.81	-0.689	-6.98	-2.76
70NR1	-0.867	0.260	-1.756	-0.158	-3.42	-0.608	-6.22	-2.49
70SR1A	-1.283	0.423	-2.693	-0.308	-3.33	-0.728	-6.68	-2.22
70SR3A	-1.127	0.312	-2.590	-0.297	-4.69	-0.952	-9.07	-3.22
70NR2A	-1.080	0.270						
70SR2B	-0.371	0.112	-0.855	-0.084	-4.31	-0.750	-7.76	-3.17
70SR1B	-0.462	0.155	-1.242	-0.191	-5.03	-1.232	-10.70	-3.15
70SR3B	-0.489	0.180	-1.154	-0.168	-3.69	-0.933	-7.98	-2.26
70NR2B	-0.577	0.187						
70WG1	+0.419	0.349	-0.250	-0.057	-1.92	-0.163	-2.67	-1.67
76EW1	-0.479	0.128						
76ER1	-0.584	0.164	-1.234	-0.139	-3.97	-0.848	-7.87	-2.68
76ER2	-0.580	0.139	-1.188	-0.154	-4.36	-1.108	-9.46	-2.67
76WR2	-0.301	0.131	-0.744	-0.077	-3.39	-0.588	-6.09	-2.49
76WR1	-0.517	0.260						
76WU2	+0.200	0.272	-0.299	-0.039	-1.83	-0.143	-2.49	-1.61
76WU1	+0.124	0.195						
82NG1A	-0.569	0.133	-1.041	-0.069	-3.54	-0.519	-5.93	-2.75
82NG2	-0.607	0.163	-1.181	-0.120	-3.53	-0.736	-6.92	-2.41
82NG1B	-0.771	0.286	-1.570	-0.090	-2.79	-0.315	-4.24	-2.31
83SG1B	-0.638	0.140	-1.273	-0.101	-4.55	-0.721	-7.87	-3.45
83SG2	-0.642	0.193	-1.402	-0.098	-3.94	-0.508	-6.28	-3.17
83SG1A	-0.916	0.315	-1.867	-0.081	-3.02	-0.257	-4.20	-2.63
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY ESTATE HOUSES

QUANTITY RECORDED - HIGHEST EXTREME C_p WIND ANGLE 265° BRE. EQUIVALENT RUN A7.

	FROM PART I	CURRENT DATA FROM TABLES:-			REDUCED MODE AND DISPERSION		RANGE OF EXTREME DISTRIBUTION	
	Mean C_p μ	C_p Variance σ	Mode u	Dispersion d	$u' = \frac{u-\mu}{\sigma}$	$d' = \frac{d}{\sigma}$	$u'+4.600d'$ (F=0.99)	$u'-1.527d'$ (F=0.01)
33EW1	-0.470	0.110	-0.127	0.050	3.11	0.455	5.20	2.42
33ER1	-0.666	0.182	-0.261	0.026	2.22	0.143	2.88	2.00
33ER2	-0.683	0.197	-0.279	0.042	2.06	0.213	3.04	1.73
33WR2	-0.280	0.178	+0.440	0.080	4.05	0.449	6.12	3.36
33WR1	-0.244	0.241	+0.728	0.152	4.04	0.631	6.94	3.08
33WW2	-0.149	0.226	+0.905	0.121	4.67	0.535	7.13	3.85
33WW1	-0.160	0.208	+0.798	0.080	4.60	0.385	6.37	4.01
47EW1	-0.423	0.109	-0.095	0.030	3.01	0.275	4.28	2.59
47ER1	-0.594	0.169	-0.228	0.035	2.17	0.207	3.12	1.85
47ER2	-0.596	0.172	-0.220	0.025	2.18	0.145	2.85	1.96
47WR2	-0.291	0.152	+0.256	0.116	3.61	0.763	7.12	2.45
47WR1	-0.309	0.213	+0.475	0.101	3.68	0.474	5.86	2.96
47WW2	-0.082	0.219	+0.981	0.195	4.86	0.890	8.96	3.50
47WW1	-0.123	0.178	+0.674	0.135	4.49	0.758	7.98	3.33
58EW1	-0.305	0.099	-0.023	0.032	2.86	0.323	4.35	2.37
58ER1	-0.441	0.166	-0.096	0.016	2.08	0.096	2.52	1.93
58ER2	-0.501	0.195	-0.199	0.033	1.55	0.169	2.33	1.29
58WR2	-0.278	0.172	+0.327	0.070	3.52	0.407	5.39	2.90
58WR1	-0.288	0.232	+0.465	0.141	3.24	0.608	6.04	2.31
58WW2	-0.387	0.228	+0.350	0.147	3.23	0.645	6.20	2.25
58WW1	-0.395	0.169	+0.150	0.115	3.22	0.680	6.35	2.18
70SR2A	-0.785	0.270	-0.174	0.047	2.26	0.174	3.06	1.99
70NR1	-0.867	0.260	-0.314	0.054	2.13	0.208	3.08	1.81
70SR1A	-1.283	0.423	-0.346	0.080	2.21	0.189	3.08	1.92
70SR3A	-1.127	0.312	-0.533	0.042	1.91	0.135	2.53	1.70
70NR2A	-1.080	0.270						
70SR2B	-0.371	0.112	-0.071	0.026	2.67	0.232	3.74	2.32
70SR1B	-0.462	0.155	-0.114	0.023	2.24	0.148	2.92	2.01
70SR3B	-0.489	0.180	+0.004	0.055	2.73	0.306	4.14	2.26
70NR2B	-0.577	0.187						
70WG1	+0.419	0.349	+1.734	0.187	3.77	0.536	6.24	2.95
76EW1	-0.479	0.128						
76ER1	-0.584	0.164	-0.268	0.018	1.93	0.110	2.44	1.76
76ER2	-0.580	0.139	-0.253	0.032	2.35	0.230	3.41	2.00
76WR2	-0.301	0.131	+0.051	0.042	2.70	0.321	4.18	2.21
76WR1	-0.517	0.260						
76WW2	+0.200	0.272	+1.110	0.204	3.34	0.750	6.79	2.20
76WW1	+0.124	0.195						
82NG1A	-0.569	0.133	-0.244	0.027	2.44	0.203	3.37	2.13
82NG2	-0.607	0.163	-0.251	0.036	2.19	0.221	3.21	1.85
82NG1B	-0.771	0.286	+0.042	0.141	2.84	0.493	5.11	2.09
83SG1B	-0.638	0.140	-0.344	0.034	2.11	0.243	3.23	1.74
83SG2	-0.642	0.193	-0.259	0.047	1.99	0.244	3.11	1.62
83SG1A	-0.916	0.315	-0.113	0.084	2.55	0.267	3.78	2.14
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT		—	—					
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY ESTATE HOUSES

QUANTITY RECORDED PEAK PRESSURE FACTORS (2 sec. Average . 17 min observation) WIND ANGLE θ 265° BRE. EQUIVALENT RUN A7.

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E	BRISTOL	OXFORD		B.R.E	BRISTOL
	F = 0.99	F=0.01	Single Sample	Single Sample	F=0.01	F=0.99	Single Sample	Single Sample
33EW1	-6.17	-3.00	[-0.5]	-2.7				
33ER1	-6.85	-3.18	-5.4	-3.6				
33ER2	-7.06	-3.67	-5.0	-5.1				
33WR2				-3.4	6.12	3.36	2.1	
33WR1					6.94	3.08	4.0	4.2
33WW2					7.13	3.85	4.1	4.4
33WW1					6.37	4.01	3.5	4.1
47EW1	-7.45	-2.95	-4.5	-2.7				
47ER1	-7.85	-3.57	-2.7	-3.6				
47ER2	-8.44	-2.99	-2.5	-4.2				
47WR2				-2.7	7.12	2.45	3.2	
47WR1					5.86	2.96	2.8	3.0
47WW2					8.96	3.50	3.6	3.7
47WW1					7.98	3.33	4.6	4.5
58EW1				-2.3	4.35	2.37	[2.6	
58ER1	-9.24	-2.34	-3.8	-3.5				
58ER2	-7.53	-2.88	-3.5	-4.2				
58WR2				-3.0	5.39	2.90	3.2	
58WR1				-2.8	6.04	2.31	3.8	
58WW2				-3.4	6.20	2.25	3.8	
58WW1				-2.6	6.35	2.18	3.9	
70SR2A	-6.98	-2.76	-4.1	-3.3				
70NR1	-6.22	-2.49	-2.2	-2.6				
70SR1A	-6.68	-2.22	-3.3	-2.4				
70SR3A	-9.07	-3.22	-3.4	-3.1				
70NR2A								
70SR2B				-3.2	3.74	2.32	[2.0]	
70SR1B	-10.70	-3.15	-3.2	-3.0				
70SR3B	-7.98	-2.26	-2.4					2.8
70NR2B				-2.6				
70WG1					6.42	2.95	3.0	3.6
76EW1			-2.7	-2.5				
76ER1	-7.87	-2.68	-3.4	-3.5				
76ER2				-3.2	3.41	2.00	[4.5]	
76WR2	-6.09	-2.49	-2.2	-2.3				
76WR1								
76WW2					6.79	2.20	4.0	3.8
76WW1								
82NG1A	-5.93	-2.75	-2.7	-2.5				
82NG2				-2.7	3.21	1.85	[3.7]	
82NG1B	-4.24	-2.31	-3.2	-2.3				
83SG1B	-7.87	-3.45	-2.7	-2.7			Average of 14 points	
83SG2	-6.28	-3.17	-4.4	-3.1			$\bar{u} - 0.75d$	
83SG1A	-4.20	-2.63	-3.6	-2.2				
MANHOLE			Ave of 21 points					
10m PITOT			$\bar{u} - 0.50d$					
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED: MEAN & R.M.S. Cp COMPARISON — WIND ANGLE 265° — ROOF PITCH 22½° — BRE. RUN A32

	MEAN PRESSURE COEFFICIENTS						R.M.S. PRESSURE COEFFICIENTS				
	B.R.E. A7	B.R.E. A32	OXFORD (corrected for press. grad.)	U.W.O $h/z_0 = 3200$, 1/500	J.C.U.N.Q 1/50	J.C.U.N.Q 1/100	B.R.E. A7	B.R.E. A32	OXFORD	U.W.O $h/z_0 = 3200$	
3WW 1		0.09	0.16	0.20	0.40	–			0.28	0.30	
2		0.21	0.33	0.40	0.52	–			0.28	0.30	
3	0.24	0.29	0.38	0.42	0.57	0.53	0.28		0.29	0.30	
4	0.26	0.29	0.38	0.47	0.61	0.58	0.26		0.28	0.30	
5	0.21	0.29	0.40	0.47	0.60	0.66	0.28		0.30	0.30	
6	0.06		0.33	0.38	0.46	–	0.27		0.31	0.30	
7	-.09		0.18	0.21	–	–	0.23			0.30	
5WW 1		0.34	0.30	0.32	0.36	–			0.33	0.30	
2		0.51	0.43	0.45	0.64	–			0.34	0.32	
3	-.27	0.50	0.46	0.47	0.68	0.61			0.33	0.30	
4		0.54	0.47	0.47	0.69	0.66			0.34	0.32	
5		0.51	0.48	0.47	0.71	0.73	0.36		0.35	0.34	
6		0.46	0.48	0.47	0.70	0.70			0.36	0.34	
7	-.12	0.35	0.24	0.34	0.61	0.57	0.29			0.30	
3EW 1	-.48	-.43	-0.39		-0.31	–	0.22		0.16		
2		-.48	-0.43	-0.42	-0.32	–			0.17	0.17	
3	-.46	-.47	-0.39	-0.38	-0.32	–	0.19		0.15	0.13	
4		-.54	-0.39	-0.42	-0.31	–		0.19	0.15	0.17	
5		-.53	-0.43		-0.38	–		0.19	0.18		
5EW 1	-.51	-.37	-0.40	-0.42	-0.31	-0.36	0.21	0.15	0.17	0.17	
2		-.39	-0.42	-0.42	-0.33	-0.39		0.15	0.16	0.17	
3		-.42	-0.40	-0.42	-0.30	–		0.16	0.15	0.15	
4		-.47	-0.42	-0.45	-0.34	-0.39		0.16	0.16	0.17	
5		-.52	-0.46	-0.47	-0.32	–		0.19	0.17	0.17	
3SW 1	-.58	-.49	-0.82		-0.67	-0.73	0.27	0.33	0.38		
2	-.70	-.73	-0.70	-0.85	-0.67	–	0.30	0.37	0.37	0.38	
3	-.60	-.51	-0.45	-0.34	-0.35	-0.41	0.24	0.27	0.31	0.30	
4	-.49	-.28	-0.34	-0.47	-0.22	-0.38	0.23	0.16	0.18	0.17	
5SW 1		-.78	-0.72		-0.76			0.43	0.33		
2		-.74	-0.73	-0.68	-0.74	-0.86		0.45	0.41	0.34	
3			-0.41	-0.47	-0.28				0.31	0.38	
4			-0.33	-0.51	-0.19				0.20	0.21	
3NW 1	0.06	-.66	-0.63	-0.64	-0.61	-0.59	0.24	0.26	0.26	0.30	
2	-.56	-.76	-0.68	-1.02	–	–	0.37	0.30	0.28	0.30	
5NW 1			-0.64	-0.76	-0.62				0.27	0.30	
2			-0.73	-0.72	-0.80				0.31	0.25	
MANHOLE	DATUM		DATUM				DATUM		DATUM		
10m PITOT											
10m STATIC											
30m PITOT											
30m STATIC											

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED ~ LOWEST EXTREME Cp WIND ANGLE 265° ROOF PITCH 22.5° BRE. RUN. A32
(2. Sec. Average - 17 min observation)

	FROM PART I	CURRENT DATA FROM TABLES :-			REDUCED MODE AND DISPERSION		RANGE OF EXTREME DISTRIBUTION	
	Mean Cp μ	Cp Variance σ	Mode u	Dispersion d	$u' = \frac{u-\mu}{\sigma}$	$d' = \frac{d}{\sigma}$	$u' + 4.600 d'$ $(F = 0.99)$	$u' - 1.527 d'$ $(F = 0.01)$
3WW 1	+0.224	0.285	-0.283	-0.054	-1.78	-0.189	-2.65	-1.49
2	+0.397	0.283	-0.164	-0.050	-1.98	-0.177	-2.79	-1.71
3	+0.444	0.287	-0.098	-0.047	-1.89	-0.164	-2.64	-1.64
4	+0.450	0.282	-0.102	-0.048	-1.96	-0.170	-2.74	-1.70
5	+0.470	0.301	-0.111	-0.063	-1.93	-0.209	-2.89	-1.61
6	+0.401	0.308	-0.214	-0.087	-1.99	-0.282	-3.29	-1.56
7	+0.247		-0.537	-0.088				
5WW 1	+0.367	0.331	-0.230	-0.072	-1.80	-0.218	-2.80	-1.47
2	+0.496	0.344	-0.128	-0.068	-1.82	-0.198	-2.73	-1.52
3	+0.527	0.327	-0.106	-0.075	-1.94	-0.229	-3.00	-1.59
4	+0.542	0.339	-0.089	-0.061	-1.86	-0.180	-2.69	-1.59
5	+0.551	0.353	-0.101	-0.063	-1.85	-0.178	-2.67	-1.58
6	+0.551	0.363	-0.133	-0.060	-1.89	-0.165	-2.65	-1.64
7	+0.306		-0.397	-0.078				
3EW 1	-0.325	0.163	-0.949	-0.103	-3.84	-0.632	-6.75	-2.88
2	-0.357	0.167	-1.001	-0.171	-3.86	-1.024	-8.57	-2.30
3	-0.321	0.153	-0.922	-0.104	-3.93	-0.680	-7.06	-2.89
4	-0.325	0.149	-0.944	-0.068	-4.17	-0.456	-6.27	-3.47
5	-0.365	0.177	-0.972	-0.077	-3.43	-0.435	-5.43	-2.77
5EW 1	-0.336	0.166	-0.918	-0.115	-3.51	-0.693	-6.70	-2.45
2	-0.352	0.165	-0.916	-0.096	-3.42	-0.582	-6.10	-2.53
3	-0.330	0.151						
4	-0.353	0.162						
5	-0.387	0.174						
3SW 1	-0.751	0.381	-1.657	-0.251	-2.38	-0.659	-5.41	-1.37
2	-0.629	0.370	-1.756	-0.165	-3.04	-0.446	-5.09	-2.36
3	-0.386	0.305	-1.440	-0.153	-3.46	-0.502	-5.77	-2.69
4	-0.272	0.183	-0.989	-0.124	-3.92	-0.678	-7.04	-2.89
5SW 1	-0.651	0.334						
2	-0.659	0.409						
3	-0.342	0.313						
4	-0.266	0.200						
3NW 1	-0.565	0.261	-1.483	-0.167	-3.52	-0.640	-6.46	-2.54
2	-0.612	0.278	-1.655	-0.232	-3.75	-0.835	-7.59	-2.48
5NW 1	-0.576	0.274						
2	-0.658	0.306						
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

QUANTITY RECORDED - HIGHEST EXTREME Cp   WIND ANGLE 265°   ROOF PITCH 22.5°   BRE RUN A32
(2 sec Average - 17 min observation)

	FROM PART I	CURRENT DATA FROM TABLES:-			REDUCED MODE AND DISPERSION		RANGE OF EXTREME DISTRIBUTION	
	Mean Cp μ	Cp Variance σ	Mode u	Dispersion d	$u' = \frac{u-\mu}{\sigma}$	$d' = \frac{d}{\sigma}$	$u'+4.600d'$ (F = 0.99)	$u'-1.527d'$ (F = 0.01)
3WW 1	+0.224	0.285	+1.129	0.242	3.18	0.849	7.09	1.88
2	+0.397	0.283	+1.303	0.112	3.20	0.396	5.02	2.60
3	+0.444	0.287	+1.500	0.170	3.67	0.592	6.40	2.77
4	+0.450	0.282	+1.654	0.224	4.27	0.794	7.92	3.06
5	+0.470	0.301	+1.718	0.176	4.14	0.585	6.56	3.25
6	+0.401	0.308	+1.659	0.154	4.08	0.500	6.12	3.32
7	+0.247		+1.247	0.135				
5WW 1	+0.367	0.331	+1.467	0.176	3.32	0.532	5.77	2.51
2	+0.496	0.344	+1.669	0.161	3.41	0.468	5.56	2.70
3	+0.527	0.327	+1.708	0.156	3.61	0.477	5.80	2.88
4	+0.542	0.339	+1.830	0.147	3.80	0.434	5.80	3.14
5	+0.551	0.353	+1.834	0.210	3.63	0.595	6.37	2.72
6	+0.551	0.363	+1.837	0.162	3.55	0.446	5.60	2.87
7	+0.306		+1.447	0.232				
3EW 1	-0.325	0.163	+0.031	0.025	2.19	0.153	2.90	1.96
2	-0.357	0.167	-0.023	0.035	2.00	0.210	2.96	1.68
3	-0.321	0.153	-0.005	0.027	2.06	0.176	2.87	1.79
4	-0.325	0.149	+0.004	0.033	2.21	0.221	3.23	1.87
5	-0.365	0.177	-0.018	0.033	1.96	0.186	2.81	1.68
5EW 1	-0.336	0.166	+0.004	0.035	2.05	0.211	3.02	1.73
2	-0.352	0.165	+0.008	0.032	2.19	0.194	3.08	1.89
3	-0.330	0.151						
4	-0.353	0.162						
5	-0.387	0.174						
3SW 1	-0.751	0.381	+0.327	0.224	2.83	0.588	5.53	1.93
2	-0.629	0.370	+0.348	0.135	2.64	0.365	4.32	2.08
3	-0.386	0.305	+0.219	0.068	1.98	0.223	3.01	1.64
4	-0.272	0.183	+0.086	0.039	1.96	0.213	2.94	1.64
5SW 1	-0.651	0.334						
2	-0.659	0.409						
3	-0.342	0.313						
4	-0.266	0.200						
3NW 1	-0.565	0.261	-0.032	0.059	2.05	0.226	3.09	1.71
2	-0.612	0.278	-0.092	0.057	1.87	0.205	2.82	1.56
5NW 1	-0.576	0.274						
2	-0.658	0.306						
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR 1

1

QUANTITY RECORDED - PEAK PRESSURE FACTORS (2 sec Average 17 min observation) WIND ANGLE 265° ROOF PITCH 22½° BRE. RUN. A32

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E	U.W.O	OXFORD		B.R.E	U.W.O
	F= 0.99	F=0.01	Single Sample		F=0.01	F=0.99	Single Sample	
3WW 1					7.09	1.88	3.62	5.7
2					5.02	2.60	3.72	5.5
3					6.40	2.77	4.68	6.1
4					7.92	3.06	4.03	5.6
5					6.56	3.25	4.18	6.8
6								
7								
5WW 1					5.77	2.51	3.38	5.9
2					5.56	2.70	3.93	5.9
3					5.80	2.88	3.51	6.0
4					5.80	3.14	4.01	5.4
5					6.37	2.72	4.67	5.1
6					5.60	2.87	4.12	6.4
7							3.42	6.8
3EW 1	-6.75	-2.88	-5.9					
2	-8.57	-2.30	-4.2	-4.9				
3	-7.06	-2.89	-4.5	-5.5				
4	-6.27	-3.47	[-3.2]	-6.1				
5	-5.43	-2.77	-3.1					
5EW 1	-6.70	-2.45	-4.7	-5.3				
2	-6.10	-2.53	-4.7	-6.1				
3			-4.5	-5.1				
4			-3.4	-5.0				
5			-3.0	-5.9				
3SW 1	-5.41	-1.37	-3.5					
2	-5.09	-2.36	-3.9	-4.8				
3	-5.77	-2.69	-3.6	-6.2				
4	-7.04	-2.89	-3.7	-5.2				
5SW 1			-3.9					
2			-3.8	-4.7				
3								
4								
3NW 1	-6.46	-2.54	-3.3	-6.6				
2	-7.59	-2.48	-3.0	-4.5				
5NW 1								
2								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED: COMPARISON OF MEAN & RMS C_{p_i} — WIND ANGLE θ 265° — ROOF PITCH 22.5° — BRE. RUN A32

	MEAN PRESSURE COEFFICIENTS						R.M.S PRESSURE COEFFICIENTS			
	B.R.E A7	B.R.E A32	OXFORD (corrected for pressure gradient)	U.W.O h/z_0 = 3200 1/500	J.C.U.N.Q 1/50	J.C.U.N.Q 1/100	B.R.E A7	B.R.E A32	OXFORD	U.W.O
WR1 A	-.13	-.20	-0.67	-0.55	-0.87	–	0.21	0.21	0.36	0.30
B		-.34	-0.73	-0.55	-0.77	-0.67		0.25	0.36	0.30
C		-.20	-0.73	-0.55	-0.71	-0.55		0.24	0.34	0.30
D		-.22	-0.72	-0.59	-0.74	-0.50		0.23	0.33	0.30
E	-.19	-.26	-0.74	-0.59	-0.73	–	0.34	0.27	0.34	0.30
F		-.42	-0.74	-0.55	-0.76	–		0.25	0.34	0.27
WR2 A			-0.25						0.29	
B			-0.30						0.36	
C			-0.46						0.38	
D			-0.49						0.36	
E			-0.53						0.38	
F			-0.44						0.32	
WR3 A	0.21	-.10	-0.19	-0.21	-0.11		0.29	0.07	0.20	0.17
B	0.28	-.03	-0.18	-0.27	-0.04	-0.04	0.23	0.06	0.18	0.19
C	0.24	-.02	-0.20	-0.30	-0.08	-0.04	0.19	0.02	0.19	0.21
D		-.08	-0.24	-0.34	-0.11	-0.09		0.09	0.20	0.25
E	0.46		-0.23	-0.34	-0.12		0.24		0.20	0.21
F			-0.26	-0.30	-0.19				0.19	0.21
G			-0.29	-0.30	-0.15				0.19	0.19
WR4 A	0.02	-.05	-0.34	-0.25	-0.23		0.01	0.01	0.17	0.17
B			-0.34	-0.27	-0.18				0.16	0.15
C			-0.37	-0.30	-0.21				0.16	0.13
D			-0.37	-0.30	-0.24				0.15	0.13
E	0.01	-.12	-0.38	-0.30	-0.23		0.01	0.10	0.15	0.13
F			-0.39	-0.32	-0.28				0.16	0.15
ER1 A	0.19	-.56	-0.48	-0.55	-0.38		0.08	0.21	0.20	0.21
B	-.50	-.63	-0.52	-0.57	-0.46	-0.35	0.24	0.25	0.22	0.17
C		-.58	-0.54	-0.59	-0.47			0.21	0.22	0.19
ER2 A	-.06	-.16	-0.49	-0.55	-0.38	-0.34	0.20	0.24	0.20	0.21
B		-.38	-0.48	-0.55					0.19	0.17
C			-0.47	-0.55	-0.35	-0.40		0.16	0.18	0.17
D			-0.48	-0.55					0.18	0.17
E			-0.51	-0.55					0.19	0.19
ER3 A	-.06	-.16	-0.47	-0.55	-0.41			0.21	0.19	0.17
B			-0.45	-0.51	-0.37				0.16	0.17
C			-0.51	-0.53	-0.40				0.19	0.17
OH - U										
OH - L										
MANHOLE	DATUM		DATUM							
10m PITOT										
10m STATIC										
30m PITOT										
30m STATIC										

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED – LOWEST EXTREME C_p WIND ANGLE θ 265° ROOF PITCH 22.5° BRE. RUN A32
(2 Sec. Average, 17 min observation)

	FROM PART I	CURRENT DATA FROM TABLES:-			REDUCED MODE AND DISPERSION		RANGE OF EXTREME DISTRIBUTION	
	Mean Cn μ	Cn Variance σ	Mode u	dispersion d	$u' = \frac{u-\mu}{\sigma}$	$d' = \frac{d}{\sigma}$	$u'+4.600d'$ (F=0.99)	$u'-1.527d'$ (F=0.01)
WR1 A	-0.602	0.363	-1.770	-0.175	-3.22	-0.482	-5.44	-2.48
B	-0.663	0.364						
C	-0.660	0.339						
D	-0.648	0.330						
E	-0.672	0.338	-1.695	-0.176	-3.03	-0.521	-5.43	-2.23
F	-0.670	0.343						
WR2 A	-0.178	0.287						
B	-0.231	0.359						
C	-0.396	0.376						
D	-0.425	0.365						
E	-0.466	0.376						
F	-0.372	0.323						
WR3 A	-0.124	0.196	-0.752	-0.095	-3.21	-0.486	-5.44	-2.47
B	-0.114	0.182	-0.640	-0.092	-2.89	-0.505	-5.22	-2.12
C	-0.128	0.192	-0.677	-0.074	-2.86	-0.386	-4.63	-2.27
D	-0.170	0.199						
E	-0.163	0.197						
F	-0.187	0.191						
G	-0.219	0.190						
WR4 A	-0.267	0.167	-0.889	-0.087	-3.72	-0.520	-6.11	-2.93
B								
C								
D								
E	-0.315	0.149	-0.838	-0.117	-3.50	-0.784	-7.11	-2.30
F								
ER1 A	-0.413	0.204	-1.203	-0.156	-3.87	-0.764	-7.38	-2.70
B	-0.449	0.215	-1.180	-0.129	-3.39	-0.599	-6.15	-2.48
C	-0.473	0.218						
ER2 A	-0.426	0.202	-1.185	-0.210	-3.76	-1.040	-8.55	-2.172
B	-0.407	0.192						
C	-0.404	0.177						
D	-0.407	0.178						
E	-0.444	0.194						
ER3 A	-0.406	0.193	-1.559	-0.370	-5.97	-1.916	-14.78	-3.04
B	-0.377	0.161						
C	-0.438	0.193						
OH - U								
OH - L								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED – HIGHEST EXTREME C_p WIND ANGLE θ 265° ROOF PITCH 22.5° BRE. RUN. A32

(2 Sec. Average, 17 min observation)

	FROM PART I	CURRENT DATA FROM TABLES:-			REDUCED MODE AND DISPERSION		RANGE OF EXTREME DISTRIBUTION	
	Mean C_p μ	C_p Variance σ	mode u	dispersion d	$u' = \frac{u+\mu}{\sigma}$	$d' = \frac{d}{\sigma}$	$u' + 4.600d'$ ($F=0.99$)	$u' - 1.527d'$ ($F=0.01$)
WR1 A	−0.602	0.363	+0.137	0.096	2.03	0.264	3.24	1.63
B	−0.663	0.364						
C	−0.660	0.339						
D	−0.648	0.330						
E	−0.672	0.338	+0.005	0.162	2.01	0.480	4.22	1.28
F	−0.670	0.343						
WR2 A	−0.178	0.287						
B	−0.231	0.359						
C	−0.396	0.376						
D	−0.425	0.365						
E	−0.466	0.376						
F	−0.372	0.323						
WR3 A	−0.124	0.196	+0.373	0.061	2.54	0.312	3.98	2.06
B	−0.114	0.182	+0.378	0.067	2.70	0.368 3.50	4.39	2.14
C	−0.128	0.192	+0.325	0.065	2.36	0.339 [illegible]	3.92	1.84
D	−0.170	0.199						
E	−0.163	0.197						
F	−0.187	0.191						
G	−0.219	0.190						
WR4 A	−0.267	0.167	+0.086	0.034	2.11	0.203	3.05	1.80
B								
C								
D								
E	−0.315	0.149	+0.018	0.032	2.23	0.214	3.22	1.90
F								
ER1 A	−0.413	0.204	−0.040	0.024	1.83	0.117	2.37	1.65
B	−0.449	0.215	−0.066	0.049	1.78	0.227	2.83	1.43
C	−0.473	0.218						
ER2 A	−0.426	0.202	−0.033	0.029	1.95	0.144	2.61	1.73
B	−0.407	0.192						
C	−0.404	0.177						
D	−0.407	0.178						
E	−0.444	0.194						
ER3 A	−0.406	0.193	−0.016	0.035	2.02	0.181	2.85	1.74
B	−0.377	0.161						
C	−0.438	0.193						
OH - U								
O.H - L								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED PEAK PRESSURE FACTORS (2 Sec Average - 17 min Observation) WIND ANGLE θ 265° ROOF PITCH 22½° BRE RUN A32

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E	U.W.O	OXFORD		B.R.E	U.W.O
	F = 0.99	F = 0.01	Single sample		F = 0.01	F = 0.99	Single sample	
WR1 A	-5.44	-2.48	-3.4	-5.7				
B			-3.1	-5.3				
C			-3.2	-5.0				
D			-4.2	-4.4				
E	-5.43	-2.23	-3.2	-5.3				
F			-2.3	-5.2				
WR2 A								
B								
C								
D								
E								
F								
WR3 A	-5.44	-2.47	-5.1	-5.2				
B					4.39	2.14	3.64	4.42
C					3.92	1.84	2.80	4.24
D			-2.2	-4.8				
E								
F								
G								
WR4 A	-6.11	-2.93	-4.7	-4.3				
B								
C								
D								
E	-7.11	-2.30	-2.8	-4.8				
F								
ER1 A	-7.38	-2.70	-3.9	-5.0				
B	-6.15	-2.48	-3.2	-5.4				
C			-3.9	-5.4				
ER2 A					2.61	1.73	3.78	2.62
B								
C			-4.5	-5.5				
D								
E								
ER3 A	-14.78	-3.04	-7.5					
PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED | WIND ANGLE 233° | ROOF PITCH 5° | B.R.E. RUN A38-C

	MEAN PRESSURE COEFFICIENTS				R.M.S. PRESSURE COEFFICIENTS			
	B.R.E.	OXFORD (Corrected for pressure grad.)	U.W.O		B.R.E.	OXFORD	U.W.O	
3WW 1	0.15	0.02	0.21		0.28	0.19	0.17	
2	0.22	0.20	0.36		0.25	0.24	0.19	
3	0.29	0.31	0.45		0.27	0.26	0.19	
4	0.37	0.37	0.52		0.30	0.28	0.23	
5	0.40	0.43	0.55		0.29	0.28	0.25	
6	0.53	0.48	0.61		0.44	0.31	0.27	
7	0.40	0.46	0.65		0.34	0.35	0.27	
5WW 1	0.49	0.06	0.25		0.33	0.22	0.17	
2	0.60	0.17	0.34		0.34	0.26	0.19	
3	0.69	0.31	0.38		0.36	0.26	0.19	
4	0.74	0.40	0.44		0.38	0.29	0.23	
5	0.81	0.42	0.47		0.42	0.31	0.23	
6	0.78	0.48	0.57		0.41	0.32	0.27	
7	0.75	0.50	0.65		0.44	0.37	0.31	
3EW 1	-0.49	-0.56			0.20	0.17		
2	-0.56	-0.59	-0.44		0.23	0.17	0.19	
3	-0.52	-0.57	-0.28		0.21	0.16	0.15	
4	-0.44	-0.52	-0.21		0.17	0.16	0.15	
5	-0.41	-0.49	-0.15		0.17	0.16	0.15	
5EW 1	-0.36	-0.56	-0.42		0.16	0.17	0.19	
2	-0.45	-0.59	-0.42		0.17	0.17	0.17	
3	-0.45	-0.56	-0.25		0.19	0.16	0.15	
4	-0.41	-0.51	-0.19		0.19	0.16	0.15	
5	-0.38	-0.49	-0.15		0.19	0.16	0.13	
2	0.00	0.14	0.38		0.48	0.48	0.31	
3	-0.21	0.09	0.27		0.17	0.25	0.34	
4	-0.11	-0.19	0.00		0.16	0.16	0.23	
5SW 1	-0.04	0.05			0.61	0.55		
2	0.22	0.10	0.34		0.49	0.49	0.31	
3			0.31				0.19	
4			-0.08				0.19	
3NW 1	-0.34	-0.49	-0.23		0.15	0.15	0.15	
2	-0.44	-0.43	0.00		0.20	0.14	0.19	
5NW 1			-0.19				0.15	
2			-0.19				0.15	
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED — WIND ANGLE 233° — ROOF PITCH 10° — BRE. RUN A38-6

	MEAN PRESSURE COEFFICIENTS				R.M.S PRESSURE COEFFICIENTS			
	B.R.E	OXFORD (corrected for pressure grad)	U.W.O		B.R.E	OXFORD	U.W.O	
3WW 1	0.10	0.02			0.26	0.20		
2	0.17	0.18			0.23	0.23		
3	0.24	0.30			0.24	0.25		
4	0.29	0.36			0.27	0.27		
5	0.36	0.44			0.27	0.29		
6	0.52	0.48			0.40	0.30		
7	0.39	0.47			0.35	0.35		
5WW 1	0.43	0.06			0.28	0.23		
2	0.55	0.15			0.32	0.25		
3	0.62	0.33			0.33	0.27		
4	0.71	0.41			0.36	0.28		
5	0.80	0.43			0.40	0.31		
6	0.78	0.47			0.41	0.33		
7	0.74	0.49			0.43	0.38		
3EW 1	-0.51	-0.56			0.22	0.16		
2	-0.56	-0.59			0.24	0.16		
3	-0.52	-0.57			0.22	0.17		
4	-0.45	-0.52			0.18	0.15		
5	-0.43	-0.49			0.18	0.16		
5EW 1	-0.36	-0.56			0.17	0.17		
2	-0.43	-0.59			0.18	0.17		
3	-0.45	-0.55			0.19	0.16		
4	-0.39	-0.50			0.18	0.15		
5	-0.37	-0.51			0.18	0.17		
3SW 1	0.01	0.05			0.51	0.53		
2	0.08	0.11			0.46	0.46		
3	-0.18	0.09			0.17	0.25		
4	-0.11	-0.18			0.15	0.17		
5SW 1	0.06	0.08			0.64	0.58		
2	0.31	0.15			0.50	0.48		
3								
4								
3NW 1	-0.34	-0.48			0.14	0.15		
2	-0.43	-0.45			0.17	0.15		
5NW 1								
2								
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED — WIND ANGLE 233° — ROOF PITCH 15° — BRE RUN A38-A

	MEAN PRESSURE COEFFICIENTS				R.M.S. PRESSURE COEFFICIENTS			
	B.R.E	OXFORD (corrected for press. grad)	U.W.O		B.R.E	OXFORD	U.W.O	
3WW 1	0.06	0.01			0.29	0.20		
2	0.16	0.20			0.25	0.23		
3	0.24	0.29			0.27	0.25		
4	0.28	0.37			0.29	0.27		
5	0.24	0.46			0.29	0.30		
6	0.49	0.49			0.41	0.31		
7	0.34	0.46			0.33	0.35		
5WW 1	0.50	0.06			0.34	0.23		
2	0.54	0.14			0.36	0.25		
3	0.63	0.33			0.37	0.27		
4	0.69	0.40			0.38	0.29		
5	0.76	0.40			0.40	0.30		
6	0.73	0.52			0.40	0.35		
7	0.67	0.52			0.40	0.39		
3EW 1	-0.53	-0.57			0.19	0.16		
2	-0.57	-0.62			0.21	0.17		
3	-0.52	-0.61			0.18	0.17		
4	-0.47	-0.58			0.16	0.17		
5	-0.47	-0.53			0.17	0.17		
5EW 1	-0.38	-0.59			0.15	0.16		
2	-0.43	-0.62			0.16	0.17		
3	-0.51	-0.59			0.19	0.18		
4	-0.42	-0.56			0.15	0.18		
5	-0.40	-0.54			0.17	0.18		
3SW 1	-0.16	0.05			0.50	0.53		
2	-0.47	0.12			0.47	0.47		
3	-0.24	0.10			0.19	0.26		
4	-0.17	-0.19			0.15	0.17		
5SW 1	-0.01	0.07			0.58	0.55		
2	0.13	0.14			0.47	0.50		
3								
4								
3NW 1	-0.38	-0.49			0.15	0.15		
2	-0.46	-0.45			0.20	0.15		
5NW 1								
2								
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED | WIND ANGLE 248° | ROOF PITCH 22.5° | BRE. RUN A38-G

	MEAN PRESSURE COEFFICIENTS				R.M.S. PRESSURE COEFFICIENTS			
	B.R.E	OXFORD Corrected for pressure grad.	U.W.O		B.R.E	OXFORD	U.W.O	
3WW 1	0.24	0.10	0.05		0.40	0.23	0.20	
2	0.33	0.29	0.28		0.33	0.25	0.22	
3	0.43	0.39	0.35		0.33	0.27	0.24	
4	0.45	0.44	0.39		0.38	0.28	0.26	
5	0.55	0.48	0.42		0.38	0.29	0.26	
6	0.62	0.48	0.44		0.52	0.31	0.26	
7	0.38	0.38	0.37		0.38	0.31	0.26	
5WW 1	0.62	0.19	0.16		0.45	0.27	0.22	
2	0.98	0.30	0.30		0.47	0.28	0.26	
3	0.91	0.44	0.33		0.47	0.29	0.26	
4	0.38	0.50	0.37		0.47	0.32	0.26	
5	0.36	0.50	0.42		0.50	0.32	0.28	
6	0.86	0.53	0.44		0.47	0.33	0.30	
7	0.79	0.45	0.44		0.43	0.34	0.30	
3EW 1	-0.50	-0.45	—		0.21	0.17		
2	-0.53	-0.47	-0.48		0.22	0.17	0.19	
3	-0.55	-0.50	-0.42		0.21	0.17	0.15	
4	-0.48	-0.48	-0.39		0.18	0.16	0.15	
5	-0.55	-0.48	-0.33		0.21	0.17	0.15	
5EW 1	-0.36	-0.46	-0.48		0.18	0.17	0.15	
2	-0.48	-0.49	-0.48		0.17	0.17	0.15	
3	-0.53	-0.60	-0.46		0.21	0.18	0.17	
4	-0.53	-0.58	-0.42		0.18	0.18	0.15	
5	-0.57	-0.54	-0.37		0.21	0.17	0.15	
3SW 1	-0.74	0.06	—		0.45	0.51	—	
2	-0.69	0.10	-0.30		0.47	0.47	0.41	
3	-0.36	0.08	0.04		0.31	0.24	0.30	
4	-0.26	-0.21	-0.37		0.17	0.17	0.19	
5SW 1	0.45	0.11			0.52	0.56		
2		0.18	-0.26			0.47	0.41	
3			0.00				0.22	
4			-0.37				0.15	
3NW 1	-0.67	-0.50	-0.44		0.24	0.17	0.22	
2	-0.84	-0.44	-0.59		0.33	0.16	0.22	
5NW 1			-0.55				0.19	
2			-0.44				0.19	
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED LOWEST EXTREME Cp — WIND ANGLE 237° — ROOF PITCH 5° — BRE. RUN A38-C

(2 Sec Average, 17 min Observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
3WW 1	0.075	0.194	-0.389	-0.050	-2.392	-0.258	-3.577	-1.998
2	0.259	0.237	-0.252	-0.062	-2.156	-0.262	-3.359	-1.757
3	0.371	0.261	-0.155	-0.067	-2.015	-0.257	-3.196	-1.623
4	0.433	0.278	-0.164	-0.060	-2.147	-0.216	-3.140	-1.818
5	0.494	0.283	-0.095	-0.070	-2.081	-0.247	-3.219	-1.704
6	0.542	0.309	-0.307	-0.251	-2.748	-0.812	-6.484	-1.507
7	0.521	0.349	-0.585	-0.213	-3.169	-0.610	-5.977	-2.237
5WW 1	0.116	0.224	-0.344	-0.046	-2.054	-0.205	-2.998	-1.740
2	0.226	0.259	-0.286	-0.036	-1.977	-0.139	-2.616	-1.765
3	0.373	0.261	-0.191	-0.090	-2.161	-0.345	-3.747	-1.634
4	0.456	0.291	-0.108	-0.044	-1.938	-0.151	-2.634	-1.707
5	0.484	0.312	-0.124	-0.078	-1.949	-0.250	-3.099	-1.567
6	0.542	0.324	-0.256	-0.187	-2.463	-0.577	-5.188	-2.104
7	0.562	0.368	-0.634	-0.212	-3.250	-0.576	-5.900	-2.370
3EW 1	-0.499	0.169	-1.053	-0.155	-3.278	-0.917	-7.497	-1.878
2	-0.532	0.166	-1.128	-0.133	-3.590	-0.801	-7.276	-2.367
3	-0.507	0.162	-1.027	-0.067	-3.210	-0.414	-5.112	-2.578
4	-0.452	0.155	-0.971	-0.077	-3.348	-0.497	-5.634	-2.590
5	-0.425	0.158	-0.940	-0.139	-3.259	-0.880	-7.306	-1.916
5EW 1	-0.497	0.165	-1.033	-0.087	-3.248	-0.527	-5.674	-2.443
2	-0.527	0.170	-1.074	-0.114	-3.218	-0.671	-6.302	-2.194
3	-0.495	0.162	-1.035	-0.092	-3.333	-0.568	-5.946	-2.466
4	-0.449	0.155	-0.942	-0.092	-3.181	-0.594	-5.911	-2.274
5	-0.430	0.162	-0.967	-0.088	-3.315	-0.543	-5.814	-2.485
3SW 1	0.118	0.531	-1.315	-0.147	-2.699	-0.277	-3.972	-1.529
2	0.197	0.476	-1.280	-0.157	-3.103	-0.330	-4.620	-2.599
3	0.148	0.250	-0.776	-0.218	-3.696	-0.872	-7.707	-2.364
4	-0.127	0.164	-0.582	-0.085	-2.774	-0.518	-5.159	-1.983
5SW 1	0.110	0.548	-1.576	-0.213	-3.077	-0.389	-4.865	-2.483
2	0.158	0.485	-1.625	-0.226	-3.676	-0.466	-5.820	-2.965
3								
4								
3NW 1	-0.426	0.151	-1.004	-0.155	-3.828	-1.026	-8.550	-2.260
2	-0.372	0.143	-0.914	-0.103	-3.790	-0.720	-7.103	-2.690
5NW 1								
2								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED LOWEST EXTREME Cp (2 Sec Average, 17 min Observation) | WIND ANGLE 233° | ROOF PITCH 10° | BRE. RUN A38-1

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
3WW 1	0.077	0.197	-0.357	-0.039	-2.203	-0.198	-3.114	-1.901
2	0.250	0.231	-0.259	-0.050	-2.203	-0.216	-3.199	-1.873
3	0.363	0.249	-0.174	-0.068	-2.157	-0.273	-3.413	-1.740
4	0.419	0.265	-0.125	-0.058	-2.053	-0.219	-3.060	-1.719
5	0.496	0.290	-0.114	-0.096	-2.103	-0.331	-3.626	-1.598
6	0.543	0.301	-0.331	-0.170	-2.904	-0.565	-5.502	-2.041
7	0.526	0.348	-0.524	-0.179	-3.017	-0.514	-5.383	-2.232
5WW 1	0.120	0.226	-0.370	-0.055	-2.168	-0.243	-3.288	-1.797
2	0.211	0.248	-0.345	-0.055	-2.242	-0.222	-3.262	-1.903
3	0.394	0.266	-0.199	-0.053	-2.229	-0.199	-3.146	-1.925
4	0.467	0.283	-0.171	-0.103	-2.254	-0.364	-3.929	-1.699
5	0.488	0.312	-0.149	-0.032	-2.042	-0.103	-2.513	-1.885
6	0.528	0.327	-0.362	-0.228	-2.722	-0.697	-5.929	-1.657
7	0.545	0.377	-0.684	-0.257	-3.260	-0.682	-6.396	-2.219
3EW 1	-0.497	0.161	-1.008	-0.121	-3.174	-0.752	-6.631	-2.026
2	-0.530	0.163	-1.086	-0.100	-3.411	-0.613	-6.233	-2.474
3	-0.512	0.167	-1.129	-0.093	-3.695	-0.557	-6.256	-2.844
4	-0.464	0.154	-1.040	-0.117	-3.740	-0.760	-7.235	-2.580
5	-0.437	0.160	-0.938	-0.106	-3.131	-0.663	-6.179	-2.120
5EW 1	-0.506	0.166	-1.049	-0.111	-3.271	-0.669	-6.347	-2.250
2	-0.525	0.165	-1.157	-0.098	-3.830	-0.594	-6.562	-2.923
3	-0.493	0.161	-1.099	-0.104	-3.764	-0.646	-6.735	-2.778
4	-0.443	0.152	-0.953	-0.085	-3.355	-0.559	-5.928	-2.501
5	-0.451	0.172	-1.035	-0.098	-3.395	-0.570	-6.016	-2.525
3SW 1	0.108	0.525	-1.280	-0.187	-2.644	-0.356	-4.282	-2.100
2	0.165	0.463	-1.307	-0.203	-3.179	-0.438	-5.196	-2.510
3	0.150	0.248	-0.702	-0.218	-3.435	-0.879	-7.479	-2.093
4	-0.122	0.171	-0.548	-0.053	-2.491	-0.310	-3.917	-2.018
5SW 1	0.141	0.577	-1.526	-0.261	-2.889	-0.452	-4.970	-2.198
2	0.206	0.476	-1.547	-0.230	-3.683	-0.483	-5.905	-2.945
3								
4								
3NW 1	-0.422	0.150	-0.932	-0.124	-3.400	-0.827	-7.203	-2.138
2	-0.385	0.147	-0.910	-0.121	-3.571	-0.823	-7.358	-2.315
5NW 1								
2								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED LOWEST EXTREME Cp (2 sec Average 17 min Observation) WIND ANGLE 233° ROOF PITCH 15° BRE. RUN A38-A

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
3WW 1	0.069	0.202	-0.347	-0.056	-2.059	-0.277	-3.335	-1.636
2	0.260	0.229	-0.254	-0.056	-2.245	-0.245	-3.369	-1.871
3	0.350	0.249	-0.196	-0.060	-2.193	-0.241	-3.301	-1.825
4	0.428	0.272	-0.172	-0.083	-2.206	-0.305	-3.610	-1.740
5	0.516	0.304	-0.124	-0.128	-2.105	-0.421	-4.042	-1.462
6	0.546	0.308	-0.301	-0.194	-2.750	-0.630	-5.647	-1.788
7	0.519	0.350	-0.646	-0.268	-3.329	-0.766	-6.851	-2.159
5WW 1	0.119	0.233	-0.398	-0.052	-2.219	-0.223	-3.245	-1.878
2	0.203	0.252	-0.316	-0.060	-2.060	-0.238	-3.155	-1.696
3	0.392	0.266	-0.164	-0.066	-2.090	-0.248	-3.232	-1.711
4	0.462	0.286	-0.170	-0.075	-2.210	-0.262	-3.416	-1.809
5	0.457	0.300	-0.171	-0.071	-2.093	-0.237	-3.182	-1.732
6	0.576	0.347	-0.306	-0.232	-2.542	-0.669	-5.617	-1.521
7	0.578	0.392	-0.581	-0.185	-2.957	-0.472	-5.128	-2.236
3EW 1	-0.514	0.163	-1.033	-0.058	-3.184	-0.356	-4.821	-2.641
2	-0.557	0.172	-1.110	-0.133	-3.215	-0.773	-6.772	-2.034
3	-0.546	0.167	-1.162	-0.054	-3.689	-0.323	-5.176	-3.195
4	-0.516	0.166	-1.040	-0.111	-3.157	-0.669	-6.233	-2.136
5	-0.473	0.165	-1.000	-0.084	-3.194	-0.509	-5.536	-2.417
5EW 1	-0.530	0.161	-1.066	-0.092	-3.329	-0.571	-5.958	-2.457
2	-0.558	0.174	-1.127	-0.089	-3.270	-0.511	-5.623	-2.489
3	-0.526	0.182	-1.141	-0.089	-3.379	-0.489	-5.629	-2.632
4	-0.503	0.184	-1.106	-0.110	-3.277	-0.598	-6.027	-2.364
5	-0.484	0.182	-1.091	-0.115	-3.335	-0.632	-6.242	-2.370
3SW 1	0.113	0.532	-1.308	-0.213	-2.671	-0.400	-4.513	-2.060
2	0.179	0.467	-1.326	-0.164	-3.223	-0.351	-4.838	-2.686
3	0.159	0.258	-0.668	-0.157	-3.205	-0.609	-6.005	-2.276
4	0.132	0.167	-0.572	-0.057	-2.635	-0.341	-4.205	-2.114
5SW 1	0.128	0.553	-1.616	-0.195	-3.154	-0.353	-4.776	-2.615
2	0.196	0.496	-1.586	-0.241	-3.593	-0.486	-5.828	-2.851
3								
4								
3NW 1	-0.426	0.149	-1.002	-0.123	-3.866	-0.826	-7.663	-2.605
2	-0.390	0.151	-0.979	-0.167	-3.901	-1.106	-8.988	-2.212
5NW 1								
2								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED LOWEST EXTREME Cp WIND ANGLE 248° ROOF PITCH 22½° BRE. RUN A38-G
(2 Sec Average, 17 min. Observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
3WW 1	0.156	0.230	-0.372	-0.049	-2.296	-0.213	-3.276	-1.970
2	0.352	0.249	-0.199	-0.067	-2.213	-0.269	-3.451	-1.802
3	0.452	0.267	-0.113	-0.051	-2.116	-0.191	-2.995	-1.824
4	0.498	0.281	-0.087	-0.072	-2.082	-0.256	-3.260	-1.691
5	0.538	0.293	-0.069	-0.044	-2.072	-0.150	-2.762	-1.842
6	0.539	0.307	-0.084	-0.095	-2.029	-0.309	-3.453	-1.557
7	0.442	0.308	-0.299	-0.113	-2.406	-0.367	-4.094	-1.846
5WW 1	0.253	0.269	-0.320	-0.053	-2.130	-0.197	-3.036	-1.829
2	0.360	0.282	-0.220	-0.060	-2.057	-0.213	-3.035	-1.732
3	0.504	0.293	-0.122	-0.084	-2.137	-0.287	-3.455	-1.699
4	0.558	0.319	-0.103	-0.066	-2.072	-0.207	-3.024	-1.756
5	0.564	0.318	-0.080	-0.069	-2.025	-0.217	-3.023	-1.694
6	0.592	0.333	-0.095	-0.055	-2.063	-0.165	-2.823	-1.811
7	0.515	0.339	-0.235	-0.111	-2.212	-0.327	-3.719	-1.712
3EW 1	-0.385	0.170	-1.008	-0.134	-3.665	-0.788	-7.291	-2.461
2	-0.414	0.170	-1.025	-0.117	-3.594	-0.688	-6.760	-2.543
3	-0.438	0.165	-1.072	-0.093	-3.842	-0.564	-6.435	-2.982
4	-0.418	0.155	-0.963	-0.122	-3.516	-0.787	-7.137	-2.314
5	-0.419	0.169	-1.042	-0.135	-3.686	-0.799	-7.361	-2.467
5EW 1	-0.404	0.168	-1.011	-0.117	-3.613	-0.696	-6.817	-2.550
2	-0.428	0.167	-1.095	-0.092	-3.994	-0.551	-6.528	-3.153
3	-0.539	0.183	-1.229	-0.113	-3.770	-0.617	-6.611	-2.828
4	-0.524	0.179	-1.150	-0.132	-3.497	-0.737	-6.889	-2.371
5	-0.481	0.171	-1.052	-0.130	-3.339	-0.760	-6.836	-2.178
3SW 1	0.120	0.511	-1.272	-0.118	-2.724	-0.231	-3.786	-2.371
2	0.159	0.470	-1.341	-0.330	-3.191	-0.702	-6.421	-2.119
3	0.141	0.243	-1.262	-0.185	-5.774	-0.761	-9.276	-4.611
4	-0.147	0.166	-0.757	-0.133	-3.675	-0.801	-7.360	-2.451
5SW 1	0.169	0.557	-1.985	-0.395	-3.867	-0.709	-7.129	-2.784
2	0.235	0.469	-1.974	-0.206	-4.710	-0.439	-6.730	-4.039
3								
4								
3NW 1	-0.438	0.172	-1.390	-0.225	-5.535	-1.308	-11.552	-3.537
2	-0.383	0.163	-1.338	-0.156	-5.859	-0.957	-10.261	-4.397
5NW 1								
2								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED LOWEST EXTREME C_p WIND ANGLE 233° ROOF PITCH 22½° BRE. RU1

(2 sec average 17 min. observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION	
	Mean C_p μ	R.M.S. C_p σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$
3WW 1	0.067	0.192	-0.364	-0.057	-2.245	-0.297
2	0.256	0.223	-0.241	-0.054	-2.229	-0.242
3	0.367	0.243	-0.164	-0.059	-2.185	-0.243
4	0.429	0.263	-0.123	-0.078	-2.099	-0.297
5	0.500	0.276	-0.086	-0.079	-2.123	-0.286
6	0.550	0.296	-0.302	-0.253	-2.878	-0.855
7	0.534	0.339	-0.617	-0.216	-3.395	-0.637
5WW 1	0.116	0.220	-0.329	-0.049	-2.023	-0.223
2	0.232	0.248	-0.270	-0.053	-2.024	-0.214
3	0.371	0.254	-0.163	-0.062	-2.102	-0.244
4	0.474	0.288	-0.126	-0.054	-2.083	-0.188
5	0.502	0.304	-0.088	-0.054	-1.941	-0.178
6	0.561	0.330	-0.231	-0.241	-2.400	-0.730
7	0.605	0.373	-0.741	-0.167	-3.609	-0.448
3EW 1	-0.521	0.162	-1.065	-0.103	-3.358	-0.636
2	-0.560	0.165	-1.102	-0.108	-3.285	-0.655
3	-0.560	0.175	-1.173	-0.134	-3.503	-0.766
4	-0.501	0.162	-1.064	-0.116	-3.475	-0.716
5	-0.483	0.173	-1.082	-0.092	-3.462	-0.532
5EW 1	-0.542	0.163	-1.076	-0.079	-3.276	-0.485
2	-0.571	0.178	-1.159	-0.101	-3.303	-0.567
3	-0.542	0.181	-1.181	-0.126	-3.530	-0.696
4	-0.500	0.171	-1.152	-0.111	-3.813	-0.649
5	-0.472	0.167	-1.057	-0.117	-3.503	-0.701
3SW 1	0.142	0.491	-1.253	-0.201	-2.841	-0.408
2	0.207	0.458	-1.287	-0.160	-3.262	-0.349
3	0.168	0.242	-0.566	-0.123	-3.033	-0.508
4	-0.141	0.161	-0.642	-0.071	-3.112	-0.441
5SW 1	0.172	0.536	-1.533	-0.258	-3.181	-0.481
2	0.278	0.445	-1.472	-0.311	-3.933	-0.699
3						
4						
3NW 1	-0.387	0.150	-0.999	-0.167	-3.849	-1.050
2	-0.414	0.160	-1.146	-0.184	-4.575	-1.150
5NW 1						
2						
MANHOLE	DATUM	DATUM	DATUM	DATUM		
10m PITOT						
10m STATIC						
30m PITOT						
30m STATIC						

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED HIGHEST EXTREME Cp (2 Sec Average, 17 min. observation) WIND ANGLE 233° ROOF PITCH 5° BRE. RUN A38-C

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	RMS Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
3WW 1	0.075	0.194	0.756	0.115	3.510	0.593	6.237	2.905
2	0.259	0.237	1.139	0.181	3.713	0.764	7.226	2.547
3	0.371	0.261	1.298	0.134	3.552	0.513	5.913	2.768
4	0.433	0.278	1.410	0.179	3.514	0.644	6.476	2.531
5	0.494	0.283	1.500	0.150	3.555	0.530	5.993	2.745
6	0.542	0.309	1.611	0.167	3.460	0.540	5.946	2.634
7	0.521	0.349	1.667	0.243	3.284	0.696	6.487	2.220
5WW 1	0.116	0.224	0.872	0.127	3.375	0.567	5.983	2.509
2	0.226	0.259	1.141	0.189	3.533	0.730	6.890	2.419
3	0.373	0.261	1.340	0.131	3.705	0.502	6.014	2.939
4	0.456	0.291	1.541	0.248	3.729	0.852	7.649	2.427
5	0.484	0.312	1.627	0.190	3.663	0.609	6.465	2.734
6	0.542	0.324	1.725	0.198	3.651	0.611	6.462	2.718
7	0.562	0.368	1.759	0.199	3.253	0.541	5.740	2.427
3EW 1	-0.499	0.169	-0.112	0.037	2.290	0.219	3.297	1.956
2	-0.532	0.166	-0.136	0.042	2.386	0.253	3.549	1.999
3	-0.507	0.162	-0.148	0.042	2.216	0.259	3.409	1.820
4	-0.452	0.155	-0.117	0.043	2.161	0.277	3.437	1.738
5	-0.425	0.158	-0.067	0.037	2.266	0.234	3.343	1.908
5EW 1	-0.497	0.165	-0.120	0.029	2.285	0.176	3.093	2.016
2	-0.527	0.170	-0.146	0.045	2.241	0.265	3.459	1.837
3	-0.495	0.162	-0.132	0.035	2.241	0.216	3.235	1.911
4	-0.449	0.155	-0.068	0.042	2.458	0.271	3.705	2.044
5	-0.430	0.162	-0.075	0.043	2.191	0.265	3.412	1.785
3SW 1	0.118	0.531	1.416	0.236	2.444	0.444	4.489	1.766
2	0.197	0.476	1.360	0.163	2.443	0.342	4.018	1.920
3	0.148	0.250	1.022	0.139	3.496	0.556	6.054	2.647
4	-0.127	0.164	0.399	0.091	3.207	0.565	5.760	2.360
5SW 1	0.110	0.548	1.587	0.180	2.695	0.328	4.206	2.194
2	0.158	0.485	1.400	0.215	2.561	0.443	4.600	1.884
3								
4								
3NW 1	-0.426	0.151	-0.055	0.036	2.457	0.238	3.554	2.093
2	-0.372	0.143	-0.052	0.025	2.238	0.175	3.042	1.971
5NW 1								
2								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED HIGHEST EXTREME Cp WIND ANGLE 233° ROOF PITCH 10° BRE. RUN A38-B
(2 Sec Average, 17 min Observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	RMS Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
3WW 1	0.077	0.197	0.704	0.097	3.183	0.492	5.448	2.431
2	0.250	0.231	1.083	0.158	3.606	0.684	6.752	2.562
3	0.363	0.249	1.320	0.133	3.843	0.534	6.300	3.028
4	0.419	0.265	1.378	0.128	3.619	0.483	5.841	2.881
5	0.496	0.290	1.515	0.141	3.514	0.486	5.750	2.771
6	0.543	0.301	1.641	0.154	3.648	0.512	6.001	2.867
7	0.526	0.348	1.740	0.193	3.489	0.555	6.040	2.642
5WW 1	0.120	0.226	0.846	0.164	3.212	0.726	6.550	2.104
2	0.211	0.248	1.193	0.168	3.960	0.677	7.076	2.925
3	0.394	0.266	1.389	0.137	3.741	0.515	6.110	2.954
4	0.467	0.283	1.593	0.191	3.979	0.675	7.083	2.948
5	0.488	0.312	1.627	0.161	3.651	0.516	6.024	2.863
6	0.528	0.327	1.669	0.185	3.489	0.566	6.092	2.625
7	0.545	0.377	1.805	0.166	3.342	0.440	5.368	2.670
3EW 1	-0.497	0.161	-0.126	0.040	2.304	0.248	3.447	1.925
2	-0.530	0.163	-0.154	0.027	2.307	0.166	3.069	2.054
3	-0.512	0.167	-0.156	0.035	2.132	0.210	3.096	1.812
4	-0.464	0.154	-0.122	0.031	2.221	0.201	3.147	1.913
5	-0.437	0.160	-0.086	0.040	2.194	0.250	3.344	1.812
5EW 1	-0.506	0.166	-0.134	0.030	2.241	0.181	3.072	1.965
2	-0.525	0.165	-0.128	0.046	2.406	0.279	3.688	1.980
3	-0.493	0.161	-0.138	0.041	2.205	0.255	3.376	1.816
4	-0.443	0.152	-0.084	0.044	2.362	0.289	3.693	1.920
5	-0.451	0.172	-0.081	0.032	2.151	0.186	3.007	1.867
3SW 1	0.108	0.525	1.544	0.209	2.735	0.398	4.566	2.127
2	0.165	0.463	1.380	0.174	2.624	0.376	4.353	2.050
3	0.150	0.248	0.992	0.144	3.395	0.581	6.066	2.509
4	-0.122	0.171	0.415	0.096	3.140	0.561	5.723	2.283
5SW 1	0.141	0.577	1.519	0.228	2.388	0.395	4.206	1.785
2	0.206	0.476	1.442	0.215	2.597	0.452	4.674	1.907
3								
4								
3NW 1	-0.422	0.150	-0.079	0.033	2.287	0.220	3.299	1.951
2	-0.385	0.147	-0.044	0.040	2.320	0.272	3.571	1.904
5NW 1								
2								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED HIGHEST EXTREME Cp (2 Sec Average, 17 min. observation) WIND ANGLE 233° ROOF PITCH 15° BRE. RUN A38-

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	RMS Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F = 0.99)	$u'-1.527\,b'$ (F = 0.01)
3WW 1	0.069	0.202	0.677	0.105	3.010	0.520	5.401	2.216
2	0.260	0.229	1.078	0.152	3.572	0.664	6.625	2.558
3	0.350	0.249	1.199	0.192	3.410	0.771	6.957	2.232
4	0.428	0.272	1.352	0.109	3.397	0.401	5.240	2.785
5	0.516	0.304	1.473	0.134	3.148	0.441	5.176	2.475
6	0.546	0.308	1.658	0.242	3.610	0.786	7.225	2.411
7	0.519	0.350	1.729	0.199	3.457	0.569	6.073	2.589
5WW 1	0.119	0.233	0.972	0.161	3.661	0.691	6.389	2.606
2	0.203	0.252	1.117	0.195	3.627	0.774	7.187	2.445
3	0.392	0.266	1.394	0.141	3.767	0.530	6.205	2.957
4	0.462	0.286	1.606	0.232	4.000	0.811	7.731	2.761
5	0.457	0.300	1.561	0.191	3.680	0.637	6.609	2.708
6	0.576	0.347	1.799	0.192	3.524	0.553	6.070	2.680
7	0.578	0.392	1.852	0.194	3.250	0.495	5.527	2.494
3EW 1	-0.514	0.163	-0.148	0.037	2.245	0.227	3.290	1.899
2	-0.557	0.172	-0.175	0.029	2.221	0.169	2.997	1.963
3	-0.546	0.167	-0.161	0.029	2.305	0.174	3.104	2.040
4	-0.516	0.166	-0.150	0.044	2.205	0.265	3.424	1.800
5	-0.473	0.165	-0.095	0.028	2.291	0.170	3.072	2.032
5EW 1	-0.530	0.161	-0.161	0.042	2.292	0.261	3.492	1.894
2	-0.558	0.174	-0.164	0.036	2.264	0.207	3.216	1.948
3	-0.526	0.182	-0.159	0.034	2.016	0.187	2.876	1.731
4	-0.503	0.184	-0.102	0.044	2.179	0.239	3.279	1.814
5	-0.484	0.182	-0.115	0.029	2.027	0.159	2.760	1.784
3SW 1	0.113	0.532	1.500	0.205	2.607	0.385	4.380	2.019
2	0.179	0.467	1.385	0.225	2.582	0.535	5.045	1.765
3	0.159	0.258	0.990	0.118	3.221	0.457	5.325	2.523
4	-0.132	0.167	0.408	0.066	3.234	0.395	5.051	2.630
5SW 1	0.128	0.553	1.580	0.281	2.626	0.508	4.963	1.850
2	0.196	0.496	1.437	0.203	2.502	0.409	4.385	1.877
3								
4								
3NW 1	-0.426	0.149	-0.067	0.027	2.409	.181	3.243	2.133
2	-0.390	0.151	-0.070	0.038	2.119	.252	3.277	1.735
5NW 1								
2								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED HIGHEST EXTREME Cp (2 Sec. Average, 17 min. observation) WIND ANGLE 248° ROOF PITCH 22½° BRE. RUN A38-

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	RMS Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
3WW 1	0.156	0.230	1.048	0.179	3.878	0.778	7.458	2.690
2	0.352	0.249	1.366	0.178	4.072	0.715	7.361	2.981
3	0.452	0.267	1.518	0.168	3.993	0.629	6.887	3.032
4	0.498	0.281	1.621	0.240	3.996	0.854	7.925	2.692
5	0.538	0.293	1.647	0.179	3.785	0.611	6.595	2.852
6	0.539	0.307	1.756	0.167	3.964	0.544	6.466	3.134
7	0.442	0.308	1.632	0.174	3.864	0.565	6.462	3.001
5WW 1	0.253	0.269	1.139	0.176	3.294	0.654	6.303	2.295
2	0.360	0.282	1.458	0.213	3.894	0.755	7.368	2.740
3	0.504	0.293	1.617	0.198	3.799	0.676	6.907	2.767
4	0.558	0.319	1.777	0.179	3.811	0.560	6.384	2.956
5	0.564	0.318	1.706	0.178	3.591	0.560	6.166	2.736
6	0.592	0.333	1.747	0.153	3.468	0.459	5.582	2.767
7	0.515	0.339	1.754	0.192	3.655	0.566	6.260	2.790
3EW 1	-0.385	0.170	-0.026	0.044	2.112	0.259	3.302	1.717
2	-0.414	0.170	-0.054	0.031	2.118	0.182	2.956	1.839
3	-0.438	0.165	-0.073	0.049	2.212	0.296	3.578	1.759
4	-0.418	0.155	-0.034	0.047	2.477	0.303	3.872	2.014
5	-0.419	0.169	-0.064	0.042	2.101	0.249	3.244	1.721
5EW 1	-0.404	0.168	-0.016	0.040	2.310	0.238	3.405	1.946
2	-0.428	0.167	-0.079	0.034	2.090	0.204	3.025	1.779
3	-0.539	0.183	-0.152	0.038	2.115	0.208	3.070	1.798
4	-0.524	0.179	-0.142	0.042	2.134	0.235	3.213	1.776
5	-0.481	0.171	-0.108	0.035	2.181	0.205	3.123	1.869
3SW 1	0.120	0.511	1.481	0.156	2.663	0.305	4.068	2.197
2	0.159	0.470	1.400	0.259	2.640	0.551	5.175	1.798
3	0.141	0.243	0.574	0.091	1.782	0.374	3.505	1.210
4	-0.147	0.166	0.200	0.076	2.090	0.458	4.196	1.391
5SW 1	0.169	0.557	1.183	0.191	1.820	0.343	3.398	1.297
2	0.235	0.469	1.019	0.185	1.672	0.394	3.486	1.069
3								
4								
3NW 1	-0.438	0.172	-0.089	0.038	2.029	0.221	3.045	1.692
2	-0.383	0.163	-0.067	0.043	1.939	0.264	3.152	1.536
5NW 1								
2								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED HIGHEST EXTREME Cp (2 sec. average 17min observation) WIND ANGLE 233° ROOF PITCH 22½° BRE. RUN —

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$
3WW 1	0.067	0.192	0.706	0.107	3.328	0.557
2	0.256	0.223	1.128	0.155	3.910	0.695
3	0.367	0.243	1.274	0.155	3.733	0.638
4	0.429	0.263	1.378	0.180	3.608	0.684
5	0.500	0.276	1.435	0.200	3.388	0.725
6	0.550	0.296	1.656	0.130	3.736	0.439
7	0.534	0.339	1.615	0.158	3.189	0.466
5WW 1	0.116	0.220	0.858	0.109	3.373	0.495
2	0.232	0.248	1.151	0.182	3.706	0.734
3	0.371	0.254	1.342	0.214	3.823	0.843
4	0.474	0.288	1.487	0.246	3.517	0.854
5	0.502	0.304	1.633	0.212	3.720	0.697
6	0.561	0.330	1.665	0.159	3.345	0.482
7	0.605	0.373	1.766	0.151	3.113	0.405
3EW 1	-0.521	0.162	-0.128	0.030	2.426	0.185
2	-0.560	0.165	-0.173	0.054	2.345	0.327
3	-0.560	0.175	-0.170	0.026	2.229	0.149
4	-0.501	0.162	-0.130	0.051	2.290	0.315
5	-0.483	0.173	-0.105	0.038	2.185	0.220
5EW 1	-0.542	0.163	-0.151	0.035	2.399	0.215
2	-0.571	0.178	-0.170	0.037	2.253	0.208
3	-0.542	0.181	-0.172	0.037	2.044	0.204
4	-0.500	0.171	-0.139	0.030	2.111	0.175
5	-0.472	0.167	-0.096	0.035	2.251	0.210
3SW 1	0.142	0.491	1.653	0.190	3.077	0.387
2	0.207	0.458	1.399	0.144	2.603	0.314
3	0.168	0.242	1.023	0.146	3.533	0.603
4	-0.141	0.161	0.418	0.068	3.472	0.422
5SW 1	0.172	0.536	1.601	0.161	2.666	0.300
2	0.278	0.445	1.435	0.110	2.600	0.247
3						
4						
3NW 1	-0.387	0.159	-0.030	0.041	2.245	0.258
2	-0.414	0.160	-0.081	0.039	2.081	0.244
5NW 1						
2						
MANHOLE	DATUM	DATUM	DATUM	DATUM		
10m PITOT						
10m STATIC						
30m PITOT						
30m STATIC						

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED PEAK PRESSURE FACTORS WIND ANGLE 233° ROOF PITCH 5° BRE. RUN A38-C

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E	U.W.O	OXFORD		B.R.E	U.W.O
	F=0.99	F=0.01	Single Sample	Single Sample	F=0.99	F=0.01	Single Sample	Single Sample
3WW 1	-3.58	-2.00		-3.94	6.24	2.91	2.90	5.53
2	-3.36	-1.76		-3.47	7.23	2.55	3.41	7.47
3	-3.20	-1.62		-3.47	5.91	2.77	3.10	6.21
4	-3.14	-1.82		-2.91	6.48	2.53	3.16	5.83
5	-3.22	-1.71		-2.96	5.99	2.75	3.36	5.36
6	-6.48	-1.51		-3.11	5.95	2.63	3.48	5.41
7	-5.98	-2.24		-4.84	6.49	2.22	3.92	5.81
5WW 1	-3.00	-1.74		-3.65	5.98	2.51	3.09	5.59
2	-2.62	-1.77		-3.32	6.89	2.42	3.65	6.95
3	-3.75	-1.63		-3.32	6.02	2.94	3.35	7.16
4	-2.63	-1.71		-3.17	7.65	2.43	2.97	5.91
5	-3.10	-1.57		-3.04	6.47	2.73	3.17	5.61
6	-5.19	-2.10		-3.11	6.46	2.72	3.83	5.48
7	-5.90	-2.37		-3.58	5.74	2.43	4.10	4.94
3EW 1	-7.50	-1.88	4.42		3.30	1.96		
2	-7.28	-2.37	-4.02	-4.37	3.55	2.00		2.74
3	-5.11	-2.58	-4.33	-5.87	3.41	1.82		3.27
4	-5.63	-2.59	-5.17	-5.00	3.44	1.74		3.20
5	-7.31	-1.92	-3.63	-4.33	3.34	1.91		3.00
5EW 1	-5.67	-2.44	-3.76	-3.84	3.10	2.02		3.00
2	-6.30	-2.19	-3.98	-4.59	3.46	1.84		3.35
3	-5.95	-2.47	-3.85	-4.47	3.24	1.92		2.67
4	-5.91	-2.27	-3.63	-4.33	3.71	2.04		3.07
5	-5.81	-2.49	-3.50	-4.77	3.41	1.79		3.38
3SW 1	-3.97	-1.53	-2.31		4.49	1.77		
2	-4.62	-2.60	-3.03	-4.06	4.02	1.92		4.71
3	-7.71	-2.36	-4.75	-3.26	6.05	2.65		3.94
4	-5.16	-1.98	-2.58	-4.09	5.76	2.36		4.13
5SW 1	-4.87	-2.48			4.21	2.19	3.62	
2	-5.82	-2.97		-2.71	4.60	1.88	3.42	3.23
3								
4								
3NW 1	-8.55	-2.26	-4.33	-5.33	3.55	2.09		5.13
2	-7.10	-2.69	-4.39	-7.05	3.04	1.97		1.21
5NW 1				-5.60				3.33
2				-4.33				3.07
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

RECORDED PEAK PRESSURE FACTORS WIND ANGLE 233° ROOF PITCH 10° BRE. RUN A38-B

LOWEST EXTREMES			HIGHEST EXTREMES		
OXFORD		B.R.E	OXFORD		B.R.E
F=0.99	F=0.01	Single Sample	F=0.99	F=0.01	Single Sample
-3.11	-1.90		5.45	2.43	4.25
-3.20	-1.87		6.75	2.56	3.80
-3.41	-1.74		6.30	3.03	4.43
-3.06	-1.72		5.84	2.88	4.84
-3.63	-1.60		5.75	2.77	4.46
-5.50	-2.04		6.00	2.87	3.67
-5.38	-2.23		6.04	2.64	2.89
-3.29	-1.80		6.55	2.10	3.59
-3.26	-1.90		7.08	2.93	3.58
-3.15	-1.93		6.11	2.95	3.95
-3.93	-1.70		7.08	2.95	4.18
[illegible] 51	-1.89		6.02	2.86	3.95
-3.93	-1.66		6.09	2.63	3.50
-6.40	-2.22		5.37	2.67	2.90
-6.63	-2.03	-3.61	3.45	1.93	
-6.23	-2.47	-3.64	3.07	2.05	
-6.26	-2.84	-3.41	3.10	1.81	
-7.24	-2.58	-2.93	3.15	1.91	
-6.18	-2.12	-3.22	3.34	1.81	
-6.35	-2.25	-3.25	3.07	1.97	
-6.50	-2.92	-3.59	3.69	1.98	
-6.74	-2.78	-3.12	3.38	1.82	
-5.93	-2.50	-3.27	3.69	1.92	
-6.02	-2.53	-3.20	3.01	1.87	
-4.28	-2.10		4.57	2.13	3.05
-5.20	-2.51		4.35	2.05	2.87
-7.48	-2.09		6.07	2.51	3.55
[illegible] 92	-2.02		5.72	2.28	2.09
-4.97	-2.20		4.21	1.79	2.96
-5.91	-2.95		4.67	1.91	2.77
-7.20	-2.14	-4.09	3.30	1.96	
-7.36	-2.32	-4.95	3.57	1.91	

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED PEAK PRESSURE FACTORS WIND ANGLE 233° ROOF PITCH 15° BRE. RUN A38-A

	LOWEST EXTREMES			HIGHEST EXTREMES		
	OXFORD		B.R.E	OXFORD		B.R.E
	F = 0.99	F=0.01	Single Sample	F=0.99	F=0.01	Single Sample
3WW 1	-3.34	-1.64		5.40	2.22	7.38
2	-3.37	-1.87		6.62	2.56	6.31
3	-3.30	-1.83		6.96	2.23	5.22
4	-3.61	-1.74		5.24	2.79	5.32
5	-4.04	-1.46		5.18	2.48	4.56
6	-5.64	-1.79		7.22	2.41	3.40
7	-6.85	-2.16		6.07	2.59	4.15
5WW 1	-3.25	-1.88		6.39	2.61	6.70
2	-3.16	-1.70		7.19	2.45	7.11
3	-3.23	-1.71		6.21	2.96	6.28
4	-3.42	-1.81		7.73	2.76	5.65
5	-3.18	-1.73		6.61	2.71	4.11
6	-5.62	-1.52		6.07	2.68	4.26
7	-5.13	-2.24		5.53	2.49	4.12
3EW 1	-4.82	-2.64	-4.22	3.29	1.90	
2	-6.77	-2.03	-5.14	3.00	1.96	
3	-5.18	-3.20	-5.31	3.10	2.04	
4	-6.23	-2.14	-4.12	3.42	1.80	
5	-5.53	-2.42	-3.37	3.07	2.03	
5EW 1	-5.96	-2.46	-3.84	3.50	1.90	
2	-5.62	-2.49	-5.28	3.22	1.95	
3	-5.63	-2.63	-4.78	2.88	1.73	
4	-6.03	-2.36	-2.99	3.28	1.81	
5	-6.24	-2.37	-2.59	2.76	1.78	
3SW 1	-4.52	-2.06	-2.69	4.38	2.02	
2	-4.84	-2.69	-3.50	5.05	1.77	
3	-6.01	-2.28	-5.44	5.33	2.52	
4	-4.21	-2.11	-2.92	5.05	2.63	
5SW 1	-4.77	-2.62		4.96	1.85	2.61
2	-5.83	-2.85		4.39	1.88	2.50
3						
4						
3NW 1	-7.66	-2.61	-8.08	3.24	2.13	
2	-8.99	-2.21	-10.30	3.28	1.74	
5NW 1						
2						
MANHOLE						
10m PITOT						
10m STATIC						
30m PITOT						
30m STATIC						

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE WALLS

QUANTITY RECORDED PEAK PRESSURE FACTORS | WIND ANGLE 248° | ROOF PITCH 22½° | BRE RUN A38-G

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E	U.W.O	OXFORD		B.R.E	U.W.O
	F=0.99	F=0.01	Single Sample	Single Sample	F=0.99	F=0.01	Single Sample	Single Sample
3WW 1	-3.28	-1.97		-3.50	7.46	2.69	4.56	6.90
2	-3.45	-1.80		-3.00	7.36	2.98	3.10	6.50
3	-3.00	-1.82		-3.38	6.89	3.03	4.17	6.58
4	-3.26	-1.70		-2.92	7.93	2.69	3.90	4.96
5	-2.76	-1.84		-2.81	6.60	2.85	3.64	6.35
6	-3.45	-1.56		-3.54	6.47	3.13	3.52	5.85
7	-4.09	-1.85		-3.00	6.46	3.00	3.58	5.85
5WW 1	-3.04	-1.83		-3.00	6.30	2.30	3.71	5.77
2	-3.04	-1.73		-3.00	7.37	2.74	3.33	5.96
3	-3.45	-1.70		-2.88	6.91	2.77	4.23	5.62
4	-3.02	-1.76		-3.00	6.38	2.96	3.92	5.69
5	-3.03	-1.69		-2.68	6.17	2.74	3.86	5.64
6	-2.82	-1.81		-2.57	5.58	2.77	3.86	6.43
7	-3.72	-1.72		-2.93	6.26	2.79	3.86	5.57
3EW 1	-7.29	-2.46	-3.60		3.31	1.72		
2	-6.76	-2.54	-3.30	-4.74	2.96	1.84		2.68
3	-6.44	-2.98	-3.52	-5.53	3.58	1.76		2.80
4	-7.14	-2.32	-4.67	-4.53	3.87	2.01		3.07
5	-7.36	-2.47	-3.98	-4.93	3.25	1.72		2.67
5EW 1	-6.82	-2.55	-3.73	-6.73	3.41	1.95		3.67
2	-6.53	-3.15	-3.62	-6.33	3.03	1.78		3.53
3	-6.61	-2.83	-3.46	-4.89	3.07	1.80		3.06
4	-6.89	-2.37	-4.58	-5.47	3.22	1.78		3.13
5	-6.83	-2.17	-3.73	-5.00	3.12	1.87		3.07
3SW 1	-3.79	-2.37	-2.87		4.07	2.20		
2	-6.42	-2.12	-2.92	-4.27	5.18	1.80		3.34
3	-9.28	-4.61	-3.41	-5.20	3.51	1.21		3.43
4	-7.36	-2.45	-3.02	-4.05	4.20	1.39		3.53
5SW 1	-7.13	-2.78			3.40	1.30	3.16	
2	-6.73	-4.04		-4.12	3.50	1.07		2.88
3								
4								
3NW 1	-11.55	-3.54	-3.92	-5.55	3.05	1.70		3.00
2	-10.26	-4.40	-4.49	-5.23	3.15	1.54		2.86
5NW 1				-5.11				3.11
2				-6.63				3.32
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED ______ WIND ANGLE θ 233° ROOF PITCH 5° BRE. RUN A38-C

	MEAN PRESSURE COEFFICIENTS				R.M.S. PRESSURE COEFFICIENTS			
	B.R.E.	OXFORD corrected for pressure grad.	U.W.O		B.R.E	OXFORD	U.W.O.	
WR1 A	-1.24	-1.22	-0.80		1.21	0.33	0.38	
B	-1.54	-1.62	-0.84		0.99	0.54	0.36	
C	-1.20	-1.31	-0.88		0.54	0.39	0.34	
D			-0.77				0.27	
E	-0.22	-1.05	-0.69		0.50	0.38	0.27	
F	-0.32	-0.77	-0.48		0.40	0.31	0.23	
WR2 A			-0.75				0.38	
B								
C	-0.46	-1.22	-0.63		0.61	0.53	0.31	
D			-0.73				0.27	
E	-0.18	-0.77	-0.65		0.29	0.33	0.27	
F								
WR3 A	-0.20	-0.94	-0.69		0.32	0.54	0.37	
B	+0.12	-0.45			0.30	0.19		
C	-0.03	-0.50	-0.38		0.38	0.29	0.30	
D	-0.19	-0.79	-0.69		0.40	0.35	0.25	
E	+0.13	-0.64	-0.61		0.27	0.24	0.25	
F			|					
G								
WR4 A			-0.73					
B								
C	+0.34	-0.33	-0.23		0.25	0.17	0.11	
D			-0.31				0.19	
E			-0.38				0.19	
F								
ER1 A	-0.40	-0.69	-0.61		0.23	0.25	0.19	
B	-0.34	-0.47	-0.31		0.19	0.15	0.18	
C			-0.22				0.17	
ER2 A	-0.46	-0.91	-0.80		0.38	0.31	0.20	
B	+0.11	-0.50	-0.33		0.27	0.21	0.15	
C								
D								
E								
ER3 A	+0.41	-1.24	-0.88		0.30	0.41	0.23	
B	+0.22	-0.65	-0.31		0.28	0.24	0.15	
C								
OH - U								
O.H - L								
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED — WIND ANGLE θ 233° — ROOF PITCH 10° — BRE. RUN A38-6

	MEAN PRESSURE COEFFICIENTS				R.M.S. PRESSURE COEFFICIENTS			
	B.R.E	OXFORD corrected for pressure grad			B.R.E	OXFORD		
WR1 A	-0.75	-1.50			0.95	0.65		
B	-1.37	-1.30			1.00	0.45		
C	-1.14	-1.11			0.54	0.35		
D								
E	+0.01	-0.98			0.38	0.39		
F	-0.24	-0.82			0.29	0.32		
WR2 A								
B								
C	-0.23	-1.00			0.56	0.46		
D								
E	-0.09	-0.65			0.20	0.32		
F								
WR3 A	-0.13	-0.73			0.36	0.50		
B	+0.18	-0.41			0.28	0.17		
C	+0.08	-0.45			0.29	0.24		
D	-0.04	-0.67			0.36	0.30		
E	+0.15	-0.56			0.26	0.21		
F								
G								
WR4 A								
B								
C	+0.22	-0.35			0.26	0.15		
D								
E								
F								
ER1 A	-0.51	-0.74			0.26	0.30		
B	-0.46	-0.50			0.17	0.16		
C	-0.42				0.17			
ER2 A	-0.61	-0.96			0.46	0.32		
B	+0.05	-0.56			0.27	0.23		
C								
D								
E								
ER3 A	+0.09	-1.43			0.49	0.55		
B	-0.14	-0.91			0.42	0.30		
C								
OH - U								
OH - L								
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED: COMPARISON OF MEAN, RMS Cp — WIND ANGLE θ 233° — ROOF PITCH 15° — BRE RUN A38A

	MEAN PRESSURE COEFFICIENTS				R.M.S. PRESSURE COEFFICIENTS			
	B.R.E	OXFORD Corrected for pressure Grad			B.R.E	OXFORD		
WR1 A	-0.45	-0.87			0.74	0.39		
B	-0.98	-0.94			0.83	0.39		
C	-0.84	-0.96			0.51	0.37		
D								
E	+0.11	-0.83			0.37	0.38		
F	-0.29	-0.88			0.27	0.34		
WR2 A								
B								
C	-0.19	-0.59			0.44	0.36		
D								
E	-0.02	-0.51			0.19	0.30		
F								
WR3 A	-0.05	-0.57			0.28	0.44		
B	+0.12	-0.37			0.20	0.17		
C	+0.04	-0.40			0.19	0.16		
D	-0.04	-0.50			0.23	0.20		
E	+0.05	-0.43			0.17	0.17		
F								
G								
WR4 A								
B								
C	+0.12	-0.41			0.19	0.16		
D								
E								
F								
ER1 A	-0.62	-0.81			0.25	0.28		
B	-0.52	-0.59			0.17	0.20		
C	-0.48				0.18			
ER2 A	-0.65	-1.01			0.41	0.35		
B	-0.17	-0.69			0.24	0.28		
C								
D								
E								
ER3 A	+0.11	-1.36			0.66	0.58		
B	-0.47	-0.95			0.44	0.28		
C								
OH - U								
OH - L								
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED | WIND ANGLE θ 248° | ROOF PITCH 22½° | BRE. RUN A38-G

	MEAN PRESSURE COEFFICIENTS				R.M.S. PRESSURE COEFFICIENTS			
	B.R.E	OXFORD Corrected for pressure grad.	U.W.O		B.R.E.	OXFORD	U.W.O.	
WR1 A	-0.19	-0.42	-0.33		0.64	0.30	0.30	
B	-0.38	-0.52			0.64	0.32	0.28	
C	-0.41	-0.59	-0.48		0.50	0.34	0.26	
D			-0.55				0.26	
E	+0.17	-0.45	-0.55		0.45	0.34	0.26	
F	-0.17	-0.68	-0.48		0.33	0.28	0.21	
WR2 A								
B								
C	+0.14	-0.21	-0.34		0.38	0.28	0.24	
D								
E	+0.48	-0.21	-0.44		0.28	0.26	0.23	
F								
WR3 A	+0.14	-0.15	-0.07		0.15	0.23	0.19	
B	+0.12	-0.14			0.15	0.17	0.19	
C	+0.10	-0.18	-0.22		0.15	0.17	0.19	
D	+0.05	-0.22	-0.33		0.19	0.17	0.22	
E	+0.12	-0.20	-0.33		0.16	0.16	0.19	
F			-0.33				0.19	
G								
WR4 A								
B								
C	-0.22	-0.17	-0.30		0.11	0.17	0.15	
D								
E								
F								
ER1 A	-0.60	-0.59	-0.63		0.26	0.22	0.22	
B	-0.79	-0.59	-0.59		0.31	0.19	0.19	
C	-0.81		-0.55		0.28		0.19	
ER2 A	-0.48	-0.59	-0.67		0.26	0.24	0.22	
B	-0.53	-0.58	-0.67		0.26	0.22	0.19	
C			-0.59				0.20	
D			-0.59					
E								
ER3 A	-0.10	-0.59	-0.67		0.22	0.26	0.22	
B	-0.36	-0.55	-0.59		0.22	0.19	0.19	
C			-0.55				0.19	
OH - U								
OH - L								
MANHOLE	DATUM	DATUM			DATUM	DATUM		
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED LOWEST EXTREME Cp (2 sec. Average, 17 min Observation) — WIND ANGLE θ 233° — ROOF PITCH 5° — BRE. RUN A38-C

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	RMS Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
WR1 A	-1.157	0.331	-4.329	-0.429	-9.583	-1.296	-15.545	-7.604
B	-1.562	0.535	-3.799	-0.357	-4.181	-0.667	-7.251	-3.162
C	-1.253	0.391	-2.840	-0.280	-4.059	-0.716	-7.353	-2.965
D								
E	-0.993	0.381	-2.251	-0.183	-3.302	-0.480	-5.511	-2.568
F	-0.710	0.311	-1.811	-0.205	-3.540	-0.659	-6.572	-2.534
WR2 A								
B								
C	-1.163	0.528	-2.806	-0.280	-3.112	-0.530	-5.551	-2.302
D								
E	-0.710	0.331	-1.882	-0.188	-3.541	-0.568	-6.153	-2.673
F								
WR3 A	-0.879	0.538	-2.697	-0.350	-3.379	-0.651	-6.372	-2.386
B	-0.389	0.191	-1.423	-0.223	-5.414	-1.168	-10.784	-3.631
C	-0.444	0.292	-1.823	-0.253	-4.723	-0.866	-8.708	-3.400
D	-0.727	0.352	-1.811	-0.206	-3.080	-0.585	-5.772	-2.186
E	-0.575	0.242	-1.319	-0.159	-3.074	-0.657	-6.097	-2.071
F								
G								
WR4 A								
B								
C	-0.268	0.167	-0.953	-0.187	-4.102	-1.120	-9.253	-2.392
D								
E								
F								
ER1 A	-0.631	0.251	-1.527	-0.179	-3.570	-0.713	-6.850	-2.481
B	-0.407	0.150	-0.924	-0.102	-3.447	-0.680	-6.575	-2.408
C								
ER2 A	-0.854	0.313	-1.823	-0.218	-3.096	-0.696	-6.300	-2.032
B	-0.444	0.206	-1.157	-0.187	-3.461	-0.908	-7.637	-2.075
C								
D								
E								
ER3 A	-1.181	0.406	-2.625	-0.342	-3.557	-0.842	-7.432	-2.270
B	-0.586	0.242	-1.319	-0.162	-3.029	-0.669	-6.108	-2.007
C								
OH - U								
OH - L								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED LOWEST EXTREME Cp (2 Sec. Average, 17 min Observation) WIND ANGLE θ 233° ROOF PITCH 10° BRE. RUN A38-B

		Current Basic Data				Reduced Mode and Dispersion		Range of Extreme Values	
		Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600b'$ (F=0.99)	$u'-1.527b'$ (F=0.01)
WR1	A	-1.444	0.647	-3.478	-0.317	-3.144	-0.490	-5.398	-2.396
	B	-1.237	0.445	-2.898	-0.225	-3.710	-0.506	-6.036	-2.938
	C	-1.049	0.348	-2.260	-0.196	-3.480	-0.563	-6.071	-2.620
	D								
	E	-0.916	0.391	-2.130	-0.224	-3.105	-0.573	-5.740	-2.230
	F	-0.760	0.315	-1.865	-0.232	-3.508	-0.737	-6.896	-2.383
WR2	A								
	B								
	C	-0.942	0.457	-2.336	-0.314	-3.050	-0.687	-6.211	-2.001
	D								
	E	-0.587	0.315	-1.739	-0.291	-3.657	-0.924	-7.907	-2.246
	F								
WR3	A	-0.672	0.500	-2.464	-0.217	-3.464	-0.434	-5.460	-2.801
	B	-0.347	0.173	-1.204	-0.256	-4.954	-1.480	-11.761	-2.694
	C	-0.386	0.240	-1.395	-0.191	-4.204	-0.796	-7.865	-2.989
	D	-0.609	0.302	-1.549	-0.178	-3.113	-0.589	-5.824	-2.213
	E	-0.502	0.210	-1.136	-0.117	-3.019	-0.557	-5.582	-2.168
	F								
	G								
WR4	A								
	B								
	C	-0.293	0.154	-0.902	-0.146	-3.955	-0.948	-8.316	-2.507
	D								
	E								
	F								
ER1	A	-0.683	0.285	-1.614	-0.194	-3.267	-0.681	-6.398	-2.227
	B	-0.435	0.159	-0.905	-0.061	-2.956	-0.384	-4.721	-2.370
	C								
ER2	A	-0.895	0.316	-1.925	-0.182	-3.259	-0.576	-5.909	-2.380
	B	-0.496	0.227	-1.318	-0.121	-3.621	-0.533	-6.073	-2.807
	C								
	D								
	E								
ER3	A	-1.369	0.549	-3.146	-0.235	-3.237	-0.428	-5.206	-2.583
	B	-0.853	0.302	-2.016	-0.151	-3.851	-0.500	-6.151	-3.087
	C								
OH - U									
OH - L									
MANHOLE		DATUM	DATUM	DATUM	DATUM				
10m PITOT									
10m STATIC									
30m PITOT									
30m STATIC									

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED LOWEST EXTREME Cp WIND ANGLE θ 233° ROOF PITCH 15° BRE. RUN A38-A
(2 Sec Average 17 min observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	RMS Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600b'$ (F=0.99)	$u'-1.527b'$ (F=0.01)
WR1 A	-0.806	0.385	-2.053	-0.198	-3.239	-0.514	-5.605	-2.454
B	-0.878	0.390	-2.145	-0.215	-3.249	-0.551	-5.785	-2.407
C	-0.902	0.367	-2.023	-0.255	-3.054	-0.695	-6.251	-1.994
D								
E	-0.768	0.382	-1.826	-0.198	-2.770	-0.518	-5.154	-1.978
F	-0.815	0.338	-1.780	-0.243	-2.855	-0.719	-6.162	-1.757
WR2 A								
B								
C	-0.532	0.355	-1.527	-0.190	-2.803	-0.535	-5.265	-1.986
D								
E	-0.451	0.301	-1.480	-0.206	-3.419	-0.684	-6.567	-2.374
F								
WR3 A	-0.514	0.439	-2.169	-0.218	-3.770	-0.497	-6.054	-3.012
B	-0.307	(0.168)	-0.963	-0.322	-3.905	-1.917	-12.271	-0.978
C	-0.337	0.158	-0.881	-0.146	-3.443	-0.924	-7.694	-2.032
D	-0.435	0.195	-1.003	-0.098	-2.913	-0.503	-5.225	-2.145
E	-0.374	0.170	-0.884	-0.073	-3.000	-0.429	-4.975	-2.344
F								
G								
WR4 A								
B								
C	-0.353	0.157	-0.783	-0.065	-2.739	-0.414	-4.643	-2.107
D								
E								
F								
ER1 A	-0.753	0.282	-1.577	-0.142	-2.922	-0.504	-5.238	-2.153
B	-0.530	0.200	-1.087	-0.095	-2.785	-0.475	-4.970	-2.060
C								
ER2 A	-0.950	0.345	-2.015	-0.214	-3.087	-0.620	-5.940	-2.140
B	-0.630	0.283	-1.475	-0.122	-2.986	-0.431	-4.969	-2.328
C								
D								
E								
ER3 A	-1.298	0.575	-3.234	-0.256	-3.367	-0.445	-5.415	-2.687
B	-0.885	0.279	-1.742	-0.192	-3.072	-0.688	-6.237	-2.021
C								
OH - U								
OH - L								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED: LOWEST EXTREME Cp (2 Sec. Average, 17min Observation) — WIND ANGLE θ 248° — ROOF PITCH 22½° — BRE. RUN A38-G

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600b'$ (F=0.99)	$u'-1.527b'$ (F=0.01)
WR1 A	-0.361	0.299	-1.441	-0.105	-3.612	-0.351	-5.227	-3.076
B	-0.462	0.324	-1.508	-0.162	-3.228	-0.500	-5.528	-2.600
C	-0.529	0.335	-1.560	-0.172	-3.078	-0.513	-5.439	-2.294
D								
E	-0.388	0.339	-1.223	-0.130	-2.463	-0.383	-4.227	-1.878
F	-0.615	0.279	-1.432	-0.184	-2.928	-0.659	-5.962	-1.921
WR2 A								
B								
C	-0.149	0.275	-1.012	-0.131	-3.138	-0.476	-5.329	-2.411
D								
E	-0.149	0.256	-0.926	-0.116	-3.035	-0.453	-5.120	-2.343
F								
WR3 A	-0.088	0.231	-1.144	-0.205	-4.571	-0.887	-8.654	-3.216
B	-0.083	0.171	-0.538	-0.072	-2.661	-0.421	-4.598	-2.018
C	-0.123	0.166	-0.572	-0.083	-2.705	-0.500	-5.005	-1.941
D	-0.158	0.169	-0.609	-0.066	-2.669	-0.391	-4.465	-2.072
E	-0.143	0.162	-0.603	-0.066	-2.840	-0.407	-4.714	-2.217
F								
G								
WR4 A								
B								
C	-0.110	0.168	-0.575	-0.085	-2.768	-0.506	-5.095	-1.995
D								
E								
F								
ER1 A	-0.532	0.223	-1.305	-0.173	-3.466	-0.776	-7.035	-2.282
B	-0.528	0.194	-1.199	-0.145	-3.459	-0.747	-6.897	-2.317
C								
ER2 A	-0.532	0.237	-1.376	-0.209	-3.561	-0.882	-7.618	-2.215
B	-0.521	0.219	-1.458	-0.192	-4.279	-0.877	-8.311	-2.940
C								
D								
E								
ER3 A	-0.528	0.255	-1.730	-0.350	-4.714	-1.373	-11.027	-2.618
B	-0.489	0.188	-1.231	-0.148	-3.947	-0.787	-7.568	-2.745
C								
OH - U								
OH - L								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED LOWEST EXTREME Cp WIND ANGLE θ 233° ROOF PITCH 22½° BRE. RUN —
(2 Sec average 17 min observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$
WR1 A	-0.270	0.296	-1.249	-0.274	-3.307	-0.926
B	-0.429	0.320	-1.505	-0.287	-3.363	-0.897
C	-0.534	0.313	-1.484	-0.134	-3.035	-0.428
D	-0.308	0.281	-0.933	-0.087	-2.224	-0.310
E						
F	-0.562	0.266	-1.455	-0.190	-3.357	-0.714
WR2 A						
B						
C	-0.177	0.258	-0.928	-0.163	-2.911	-0.632
D						
E	-0.193	0.244	-0.986	-0.083	-3.250	-0.340
F						
WR 3 A	-0.268	0.382	-1.737	-0.204	-3.846	-0.534
B	-0.143	0.168	-0.717	-0.155	-3.417	-0.923
C	-0.199	0.153	-0.605	-0.075	-2.654	-0.490
D	-0.242	0.161	-0.659	-0.070	-2.590	-0.435
E	-0.221	0.153	-0.629	-0.091	-2.667	-0.595
F						
G						
WR4 A						
B						
C	-0.254	0.162	-0.772	-0.135	-3.198	-0.833
D						
E						
F						
ER 1 A	-0.785	0.277	-1.713	-0.194	-3.350	-0.700
B	-0.597	0.218	-1.249	-0.108	-2.991	-0.495
C						
ER2 A	-0.850	0.299	-1.881	-0.135	-3.448	-0.452
B	-0.773	0.286	-1.689	-0.205	-3.203	-0.717
C						
D						
E						
ER 3 A	-0.915	0.406	-2.491	-0.373	-3.882	-0.919
B	-0.680	0.252	-1.453	-0.136	-3.067	-0.540
C						
OH - U						
OH - L						
MANHOLE	DATUM	DATUM	DATUM	DATUM		
10m PITOT						
10m STATIC						
30m PITOT						
30m STATIC						

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED HIGHEST EXTREME Cp WIND ANGLE θ 233° ROOF PITCH 5° BRE RUN A38-
(2 sec Average, 17 min observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600b'$ (F=0.99)	$u'-1.527b'$ (F=0.01)
WR1 A	-1.157	0.331	-0.367	0.080	2.387	0.242	3.498	2.018
B	-1.562	0.535	-0.551	0.099	1.890	0.185	2.741	1.607
C	-1.253	0.391	-0.443	0.083	2.072	0.212	3.048	1.747
D								
E	-0.993	0.381	-0.164	0.073	2.176	0.192	3.057	1.883
F	-0.710	0.311	-0.198	0.030	1.646	0.096	2.090	1.499
WR2 A								
B								
C	-1.163	0.528	-0.133	0.038	1.951	0.072	2.282	1.841
D								
E	-0.710	0.331	-0.093	0.060	1.864	0.181	2.698	1.587
F								
WR3 A	-0.879	0.538	-0.042	0.056	1.556	0.104	2.035	1.397
B	-0.389	0.191	-0.015	0.053	1.958	0.277	3.235	1.534
C	-0.444	0.292	+0.021	0.039	1.592	0.134	2.207	1.389
D	-0.727	0.352	-0.119	0.045	1.727	0.128	2.315	1.532
E	-0.575	0.242	-0.141	0.032	1.793	0.132	2.402	1.591
F								
G								
WR4 A								
B								
C	-0.268	0.167	0.099	0.042	2.198	0.251	3.354	1.814
D								
E								
F								
ER1 A	-0.631	0.251	-0.175	0.043	1.817	0.171	2.605	1.555
B	-0.407	0.150	-0.071	0.031	2.240	0.207	3.191	1.924
C								
ER2 A	-0.854	0.313	-0.229	0.034	1.997	0.109	2.496	1.831
B	-0.444	0.206	-0.062	0.030	1.854	0.146	2.524	1.632
C								
D								
E								
ER3 A	-1.181	0.406	-0.326	0.058	2.106	0.143	2.763	1.888
B	-0.586	0.242	-0.130	0.036	1.884	0.149	2.569	1.657
C								
OH - U								
OH - L								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED HIGHEST EXTREME Cp (2 Sec. Average, 17 min observation) | WIND ANGLE θ 233° | ROOF PITCH 10° | BRE. RUN A38-B

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600b'$ (F=0.99)	$u'-1.527b'$ (F=0.01)
WR1 A	-1.444	0.647	-0.229	0.124	1.878	0.192	2.760	1.335
B	-1.237	0.445	-0.326	0.099	2.047	0.222	3.071	1.707
C	-1.049	0.348	-0.365	0.062	1.966	0.178	2.785	1.693
D								
E	-0.916	0.391	-0.093	0.112	2.105	0.286	3.423	1.667
F	-0.760	0.315	-0.221	0.037	1.711	0.117	2.251	1.532
WR2 A								
B								
C	-0.942	0.457	-0.040	0.075	1.974	0.164	2.729	1.723
D								
E	-0.587	0.315	-0.015	0.061	1.816	0.194	2.707	1.520
F								
WR3 A	-0.672	0.500	0.031	0.053	1.406	0.106	1.894	1.244
B	-0.347	0.173	0.042	0.039	2.249	0.225	3.286	1.904
C	-0.386	0.240	0.014	0.040	1.667	0.167	2.433	1.412
D	-0.609	0.302	-0.069	0.055	1.788	0.182	2.626	1.510
E	-0.502	0.210	-0.083	0.031	1.995	0.148	2.674	1.770
F								
G								
WR4 A								
B								
C	-0.293	0.154	0.056	0.044	2.266	0.286	3.581	1.830
D								
E								
F								
ER1 A	-0.683	0.285	-0.213	0.057	1.649	0.200	2.569	1.344
B	-0.435	0.159	-0.089	0.036	2.176	0.226	3.218	1.830
C								
ER2 A	-0.895	0.316	-0.264	0.041	1.997	0.130	2.594	1.799
B	-0.496	0.227	-0.076	0.030	1.850	0.132	2.458	1.648
C								
D								
E								
ER3 A	-1.369	0.549	-0.342	0.060	1.871	0.109	2.373	1.704
B	-0.853	0.302	-0.302	0.041	1.825	0.136	2.449	1.617
C								
OH - U								
O.H - L								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED: HIGHEST EXTREME Cp (2 Sec Average, 17 min observation) WIND ANGLE θ 233° ROOF PITCH 15° BRE RUN A38-A

	CURRENT BASIC DATA: Mean Cn μ	RMS Cn σ	Mode u	Dispersion b	REDUCED MODE AND DISPERSION: $u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	RANGE OF EXTREME VALUES: $u'+4.600\,b'$ (F=0.99)	$u'-1.527\,b'$ (F=0.01)
WR1 A	-0.806	0.385	-0.067	0.100	1.919	0.260	3.114	1.267
B	-0.878	0.390	-0.083	0.092	2.038	0.236	3.124	1.678
C	-0.902	0.367	-0.186	0.094	1.951	0.256	3.129	1.912
D								
E	-0.768	0.382	0.141	0.061	2.380	0.160	3.114	2.136
F	-0.815	0.338	-0.234	0.048	1.719	0.142	2.372	1.502
WR2 A								
B								
C	-0.532	0.355	0.125	0.082	1.851	0.231	2.913	1.498
D								
E	-0.451	0.301	0.166	0.072	2.050	0.239	3.150	1.685
F								
WR3 A	-0.514	0.439	0.149	0.068	1.510	0.155	2.223	1.274
B	-0.307	0.168	0.083	0.038	2.321	0.226	3.362	1.976
C	-0.337	0.158	0.041	0.046	2.392	0.291	3.732	1.948
D	-0.435	0.195	-0.031	0.033	2.072	0.169	2.850	1.813
E	-0.374	0.170	0.013	0.040	2.276	0.235	3.359	1.917
F								
G								
WR4 A								
B								
C	-0.353	0.157	0.010	0.038	2.312	0.242	3.425	1.943
D								
E								
F								
ER1 A	-0.753	0.282	-0.244	0.037	1.805	0.131	2.409	1.605
B	-0.530	0.200	-0.116	0.035	2.070	0.175	2.875	1.803
C								
ER2 A	-0.950	0.345	-0.277	0.050	1.951	0.145	2.617	1.729
B	-0.630	0.283	-0.160	0.028	1.661	0.099	2.116	1.510
C								
D								
E								
ER3 A	-1.298	0.575	-0.332	0.063	1.680	0.110	2.184	1.513
B	-0.885	0.279	-0.307	0.055	2.072	0.197	2.978	1.771
C								
OH - U								
OH - L								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED HIGHEST EXTREME Cp   WIND ANGLE θ 248°   ROOF PITCH 22½°   BRE. RUN A38-C
(2 Sec Average, 17 min observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION		RANGE OF EXTREME VALUES	
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$	$u'+4.600b'$ (F=0.99)	$u'-1.527b'$ (F=0.01)
WR1 A	-0.361	0.299	0.363	0.099	2.421	0.331	3.944	1.916
B	-0.462	0.324	0.378	0.135	2.593	0.417	4.503	1.956
C	-0.529	0.335	0.224	0.086	2.248	0.257	3.429	1.856
D								
E	-0.388	0.339	0.527	0.132	2.699	0.389	4.490	2.105
F	-0.615	0.279	0.028	0.055	2.305	0.197	3.211	2.004
WR2 A								
B								
C	-0.149	0.275	0.615	0.112	2.778	0.407	4.652	2.156
D								
E	-0.149	0.256	0.571	0.092	2.813	0.203	3.747	2.502
F								
WR3 A	-0.088	0.231	0.523	0.077	2.645	0.333	4.178	2.136
B	-0.083	0.171	0.446	0.086	3.094	0.503	5.407	2.326
C	-0.123	0.166	0.415	0.079	3.241	0.476	5.430	2.514
D	-0.158	0.169	0.326	0.058	2.864	0.343	4.443	2.340
E	-0.143	0.162	0.275	0.042	2.580	0.259	3.773	2.184
F								
G								
WR4 A								
B								
C	-0.110	0.168	0.358	0.077	2.786	0.458	4.894	2.086
D								
E								
F								
ER1 A	-0.532	0.223	-0.099	0.034	1.942	0.152	2.643	1.709
B	-0.528	0.194	-0.135	0.020	2.026	0.103	2.500	1.868
C								
ER2 A	-0.532	0.237	-0.100	0.035	1.823	0.148	2.502	1.597
B	-0.521	0.219	-0.094	0.024	1.950	0.110	2.454	1.782
C								
D								
E								
ER3 A	-0.528	0.255	-0.103	0.027	1.667	0.106	2.154	1.505
B	-0.489	0.188	-0.111	0.035	2.011	0.186	2.867	1.726
C								
OH - U								
OH - L								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED HIGHEST EXTREME Cp WIND ANGLE θ 233° ROOF PITCH 22½° BRE. RUN —
(2 Sec. Average 17 min observation)

	CURRENT BASIC DATA				REDUCED MODE AND DISPERSION			
	Mean Cp μ	R.M.S. Cp σ	Mode u	Dispersion b	$u' = \frac{u-\mu}{\sigma}$	$b' = \frac{b}{\sigma}$		
WR1 A	-0.270	0.296	0.423	0.107	2.341	0.361		
B	-0.429	0.320	0.308	0.098	2.303	0.306		
C	-0.534	0.313	0.191	0.082	2.316	0.262		
D	-0.308	0.281	0.498	0.116	2.868	0.413		
E								
F	-0.562	0.266	-0.050	0.066	1.925	0.248		
WR2 A								
B								
C	-0.177	0.258	0.432	0.101	2.360	0.391		
D								
E	-0.193	0.244	0.394	0.062	2.406	0.254		
F								
WR3 A	-0.268	0.382	0.453	0.077	1.887	0.202		
B	-0.143	0.168	0.371	0.065	3.060	0.387		
C	-0.199	0.153	0.242	0.056	2.882	0.366		
D	-0.242	0.161	0.184	0.079	2.646	0.491		
E	-0.221	0.153	0.210	0.051	2.817	0.333		
F								
G								
WR4 A								
B								
C	-0.254	0.162	0.193	0.035	2.759	0.216		
D								
E								
F								
ER1 A	-0.785	0.277	-0.247	0.052	1.942	0.188		
B	-0.597	0.218	-0.162	0.038	1.995	0.174		
C								
ER2 A	-0.850	0.299	-0.232	0.041	2.067	0.137		
B	-0.773	0.286	-0.218	0.054	1.941	0.189		
C								
D								
E								
ER3 A	-0.915	0.406	-0.238	0.042	1.667	0.103		
B	-0.680	0.252	-0.199	0.036	1.909	0.143		
C								
OH - U								
OH - L								
MANHOLE	DATUM	DATUM	DATUM	DATUM				
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED PEAK PRESSURE FACTORS   WIND ANGLE θ 233°   ROOF PITCH 5°   BRE RUN A38-…

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E	U.W.O	OXFORD		B.R.E Single Sample	U.W.O Single Sample
	F=0.99	F=0.01			F=0.99	F=0.01		
WR1 A	-15.55	-7.60	-3.40	-6.16	3.50	2.02		2.82
B	-7.25	-3.16	-3.77	—	2.74	1.61		
C	-7.35	-2.97	-4.34	-5.85	3.05	1.75		3.15
D								
E	-5.51	-2.57	-3.02	-5.96	3.06	1.88		3.00
F	-6.57	-2.53	-3.53	-6.17	2.09	1.50		2.83
WR2 A								
B								
C	-5.55	-2.30	-3.07		2.28	1.84		
D								
E	-6.15	-2.67	-3.55		2.70	1.59		
F								
WR3 A	-6.37	-2.39	-5.04	-5.16	2.04	1.40		2.70
B	-10.78	-3.63	-2.99					
C	-8.71	-3.40	-3.68	-7.27	2.20	1.39		2.40
D	-5.77	-2.19	-3.03	-6.56	2.32	1.53		3.52
E	-6.10	-2.07		-5.32	2.40	1.59	3.08	3.12
F								
G								
WR4 A								
B								
C	-9.25	-2.39		-5.55	3.36	1.81	3.26	3.82
D								
E								
F								
ER1 A	-6.85	-2.48	-4.11	-4.26	2.61	1.55		3.79
B	-6.58	-2.41	-3.42	-4.22	3.20	1.92		2.78
C			-3.41	-3.59				3.06
ER2 A	-6.30	-2.03	-6.60	-5.20	2.50	1.83		3.80
B	-7.64	-2.08		-5.20	2.52	1.63	3.05	3.73
C								
D								
E								
ER3 A	-7.43	-2.27	-4.30	-5.65	2.76	1.89		3.48
B	-6.11	-2.01		-5.07	2.57	1.66	3.14	3.60
C								
OH - U								
OH - L								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED PEAK PRESSURE FACTORS WIND ANGLE θ 233° ROOF PITCH 10° BRE. RUN A38-8

	LOWEST EXTREMES			HIGHEST EXTREMES		
	OXFORD		B.R.E	OXFORD		B.R.E
	F = 0.99	F = 0.01	Single Sample	F = 0.99	F = 0.01	Single Sample
WR1 A	-5.40	-2.40	-5.42			
B	-6.04	-2.94	-3.23			
C	-6.07	-2.62	-3.98			
D						
E	-5.74	-2.23	-3.63			
F	-6.90	-2.38	-2.88			
WR2 A						
B						
C	-6.21	-2.00	-3.95			
D						
E	-7.91	-2.25	-3.46			
F						
WR3 A	-5.46	-2.80	-5.25			
B	-11.76	-2.69	-2.39			
C	-7.87	-2.99	-2.86			
D	-5.82	-2.21	-3.33			
E	-5.58	-2.17		2.67	1.77	2.56
F						
G						
WR4 A						
B						
C	-8.32	-2.51		3.58	1.83	2.29
D						
E						
F						
ER1 A	-6.40	-2.23	-3.05			
B	-4.72	-2.37	-3.05			
C			-2.13			
ER2 A	-5.91	-2.38	-4.63			
B	-6.07	-2.81	-1.75			
C						
D						
E						
ER3 A	-5.21	-2.58	-3.64			
B	-6.15	-3.09	-3.00			
C						
OH - U						
OH - L						
MANHOLE						
10m PITOT						
10m STATIC						
30m PITOT						
30m STATIC						

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED PEAK PRESSURE FACTORS WIND ANGLE θ 15° ROOF PITCH 15° BRE RUN A38-F

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E		OXFORD		B.R.E	
	F=0.99	F=0.01	Single Sample		F=0.99	F=0.01	Single Sample	
WR1 A	-5.61	-2.45	-3.54					
B	-5.79	-2.41	-3.15					
C	-6.25	-1.99	-2.72					
D								
E	-5.15	-1.98	-3.51					
F	-6.16	-1.76	-4.50					
WR2 A								
B								
C	-5.27	-1.99	-3.58					
D								
E	-6.57	-2.37	-4.47					
F								
WR3 A	-6.05	-3.01	-5.20					
B	-12.27	-0.98	-1.76					
C	-7.69	-2.03	-3.56					
D	-5.23	-2.15	-2.60					
E	-4.97	-2.34			3.36	1.92	2.94	
F								
G								
WR4 A								
B								
C	-4.64	-2.11			3.43	1.94	2.87	
D								
E								
F								
ER1 A	-5.24	-2.15	-3.20					
B	-4.97	-2.06	-3.24					
C			-3.29					
ER2 A	-5.94	-2.14	-4.28					
B	-4.97	-2.33	-2.43					
C								
D								
E								
ER3 A	-5.42	-2.69	-2.76					
B	-6.24	-2.02	-3.28					
C								
OH - U								
OH - L								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

COMPARATIVE DATA FOR AYLESBURY TEST HOUSE ROOF

QUANTITY RECORDED PEAK PRESSURE FACTORS   WIND ANGLE θ 248°   ROOF PITCH 22½°   BRE. RUN A39-G

	LOWEST EXTREMES				HIGHEST EXTREMES			
	OXFORD		B.R.E	U.W.O	OXFORD		B.R.E	U.W.O
	F = 0.99	F = 0.01	Single Sample	Single Sample	F = 0.99	F = 0.01	Single Sample	Single Sample
WR1 A	-5.23	-3.08	-3.38	-3.17	3.94	1.92		3.80
B	-5.53	-2.60	-3.74					
C	-5.44	-2.29	-3.31	-4.85	3.43	1.86		4.54
D								
E	-4.23	-1.88		-5.19	4.50	2.11	2.49	3.85
F	-5.97	-1.92	-2.22	-6.38	3.21	2.00		4.14
WR2 A								
B								
C	-5.33	-2.41	-3.17		4.65	2.16		
D								
E	-5.12	-2.34			3.75	2.50	3.12	
F								
WR3 A	-8.65	-3.21		-7.79	4.18	2.14	2.29	4.26
B	-4.60	-2.02			5.41	2.33	1.99	
C	-5.01	-1.94		-6.05	5.43	2.51	2.13	3.68
D	-4.46	-2.07		-6.23	4.44	2.34	2.79	4.36
E	-4.71	-2.22		-6.26	3.77	2.18	2.88	4.26
F								
G								
WR4 A								
B								
C	-5.10	-2.00	-3.27	-4.13	4.89	2.09		3.47
D								
E								
F								
ER1 A	-7.04	-2.28	-3.27	-5.50	2.64	1.71		2.86
B	-6.90	-2.32	-3.17	-4.68	2.50	1.87		3.11
C			-5.28	-5.11				3.26
ER2 A	-7.62	-2.21	-3.61	-5.68	2.50	1.60		2.73
B	-8.31	-2.94	-3.91	-6.58	2.45	1.78		3.53
C								
D								
E								
ER3 A	-11.03	-2.62	-6.58	-6.36	2.15	1.50		2.86
B	-7.57	-2.75	-3.49	-4.68	2.87	1.73		3.11
C								
OH - U								
OH - L								
MANHOLE								
10m PITOT								
10m STATIC								
30m PITOT								
30m STATIC								

5. DISCUSSION

It may be helpful, when reading the following comments in conjunction with the tabulated data of chapter 4 to use the hole code key which may be pulled out from inside the back cover of this report.

5.1 Regression analysis for mean and R.M.S. Pressure coefficients

The discussion of mean pressures in Part 1 drew attention to the difficulties inherent in mean pressure measurements which arise primarily from errors in the establishment of a suitable pressure reference. The data tabulated in chapter 4 of the present report includes the Part 1 results together with additional values obtained from the test house with various roof pitch angles corresponding to the full-scale runs A38 C, B, A and G.

In addition to the tabulations on pages 30, 34, 38, 42-45, 60-63 of chapter 4 linear regression analyses have now been performed for both mean and R.M.S. pressure coefficients comparing Oxford data with B.R.E. data and Oxford data with data from either Bristol or Western Ontario where applicable. These are displayed in figs. 7 to 10. The correlation coefficients from these analyses are assembled in Table 3.

TABLE 3

SUMMARY AND INDEX OF REGRESSION ANALYSES

B.R.E. Run Code	Wind Angle	Roof Pitch	Data Source Page	Quantity (Mean/RMS)	B.R.E. / OXFORD				OTHER TUNNEL / OXFORD				
					Regression Fig. No.	Correlation Coefficient	Regression Slope	Regression Intercept	Regression Fig. No.	Tunnel	Correlation Coefficient	Regression Slope	Regression Intercept
A38-C	233°	5°	42, 60	Mean	7a	0.791	0.740	0.182	9a	U.W.O.	0.972	0.834	0.163
A38-B	233°	10°	43, 61	"	7b	0.782	0.682	0.164	-	-	-	-	-
A38-A	233°	15°	44, 62	"	7c	0.762	0.677	0.114	-	-	-	-	-
A38-G	248°	22½°	45, 63	"	7d	0.797	1.004	0.097	9b	U.W.O.	0.952	0.883	-0.056
A32	265°	22½°	34, 38	"	7e	0.893	0.832	0.033	9c	U.W.O.	0.972	1.021	0.004
A7	265°	Estate	30	"	7f	0.747	0.529	0.193	9d	Bristol	0.902	0.807	-0.066
A38-C	233°	5°	42, 60	R.M.S.	8a	0.669	1.098	0.035	10a	U.W.O.	0.812	0.508	0.086
A38-B	233°	10°	43, 61	"	8b	0.828	1.140	0.004	-	-	-	-	-
A38-A	233°	15°	44, 62	"	8c	0.801	1.104	0.004	-	-	-	-	-
A38-G	248°	22½°	45, 63	"	8d	0.770	1.178	0.022	10b	U.W.O.	0.909	0.705	0.053
A32	265°	22½°	34, 38	"	8e	0.747	0.882	0.001	10c	U.W.O.	0.931	0.875	0.023
A7	265°	Estate	30	"	8f	0.768	0.915	-0.003	10d	Bristol	0.679	0.516	0.086
A38-C	233°	5°	46, 51, 56 64, 69, 74	Extreme	13a	0.936	0.964	-0.048	14a	U.W.O.	0.967	1.388	0.300
A38-B	233°	10°	47, 52, 57 65, 70, 75	"	13b	0.972	1.019	0.094	-	-	-	-	-
A38-A	233°	15°	48, 53, 58 66, 71, 76	"	13c	0.952	1.365	0.348	-	-	-	-	-
A38-G	248°	22½°	49, 54, 59 67, 72, 77	"	13d	0.979	0.961	0.025	14b	U.W.O.	0.977	1.437	0.165
A32	265°	22½°	35, 36, 37 39, 40, 41	"	13e	0.982	1.125	0.057	14c	U.W.O.	0.988	1.500	0.297
A7	265°	Estate	31, 32, 33	"	13f	0.961	0.887	0.322	14d	Bristol	0.976	0.861	0.152

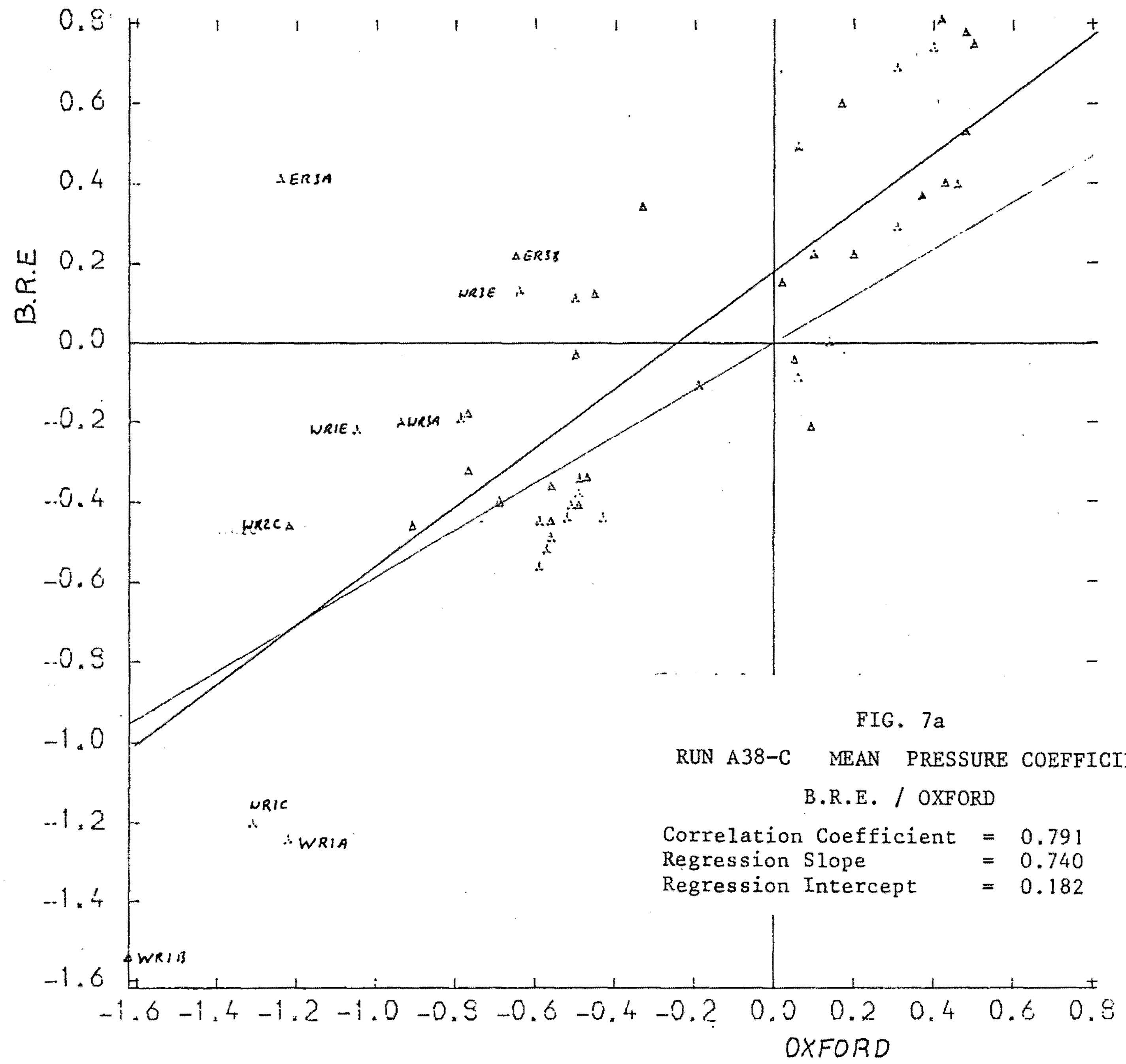

FIG. 7a

RUN A38-C MEAN PRESSURE COEFFICIENTS

B.R.E. / OXFORD

Correlation Coefficient	=	0.791
Regression Slope	=	0.740
Regression Intercept	=	0.182

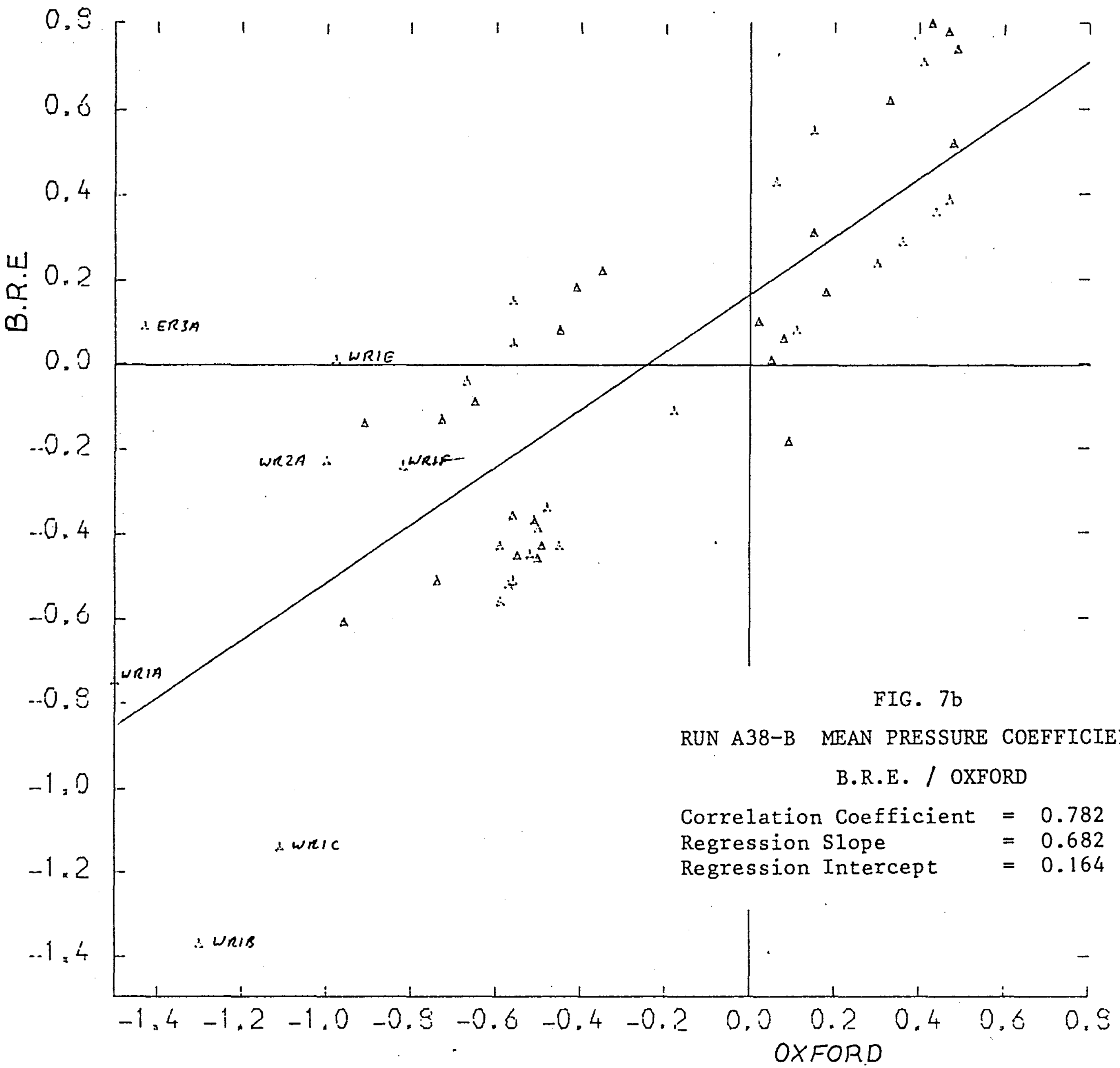

FIG. 7b

RUN A38-B MEAN PRESSURE COEFFICIENTS

B.R.E. / OXFORD

Correlation Coefficient	=	0.782
Regression Slope	=	0.682
Regression Intercept	=	0.164

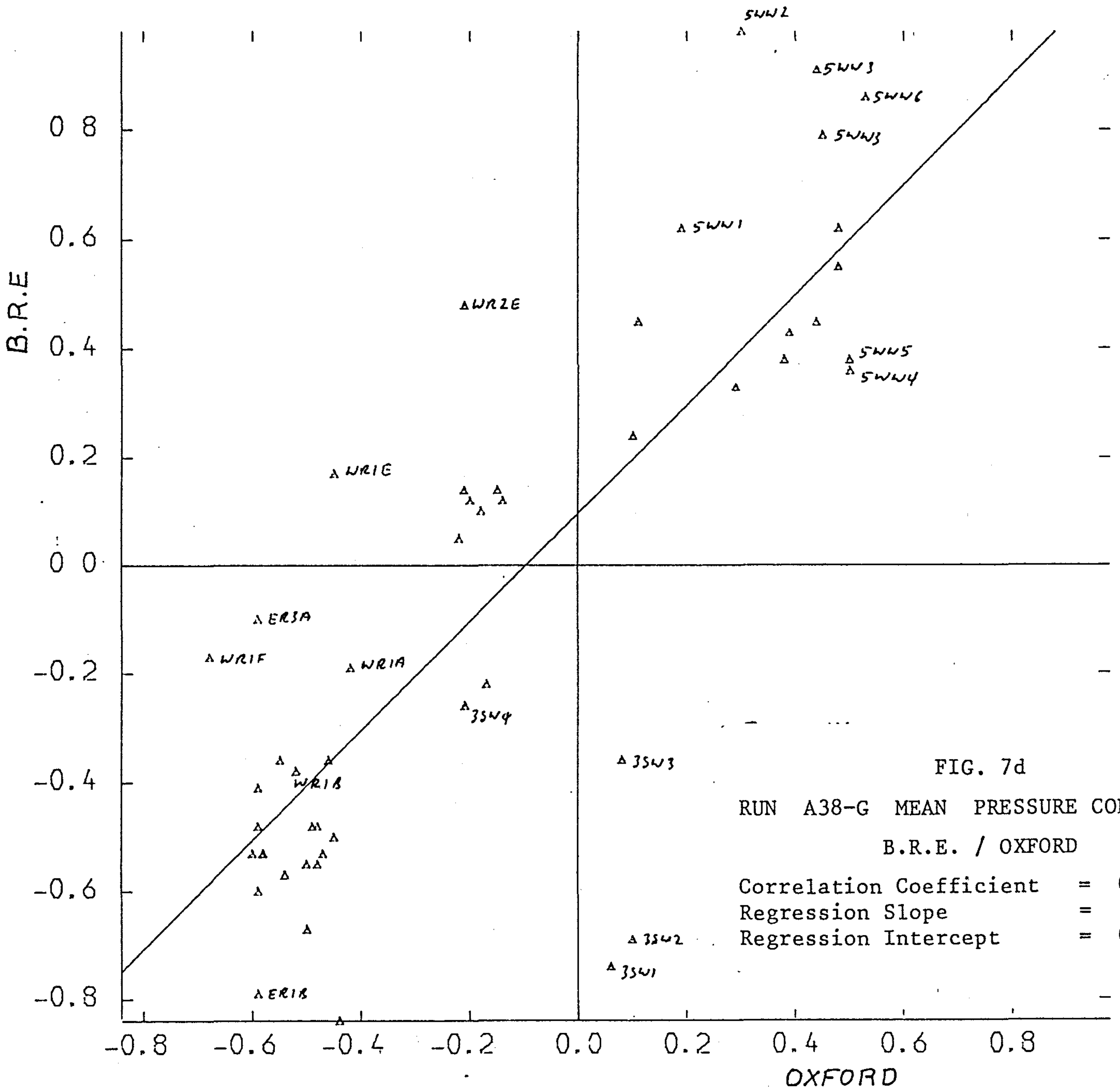

FIG. 7d

RUN A38-G MEAN PRESSURE COEFFICIENTS

B.R.E. / OXFORD

Correlation Coefficient	=	0.797
Regression Slope	=	1.004
Regression Intercept	=	0.097

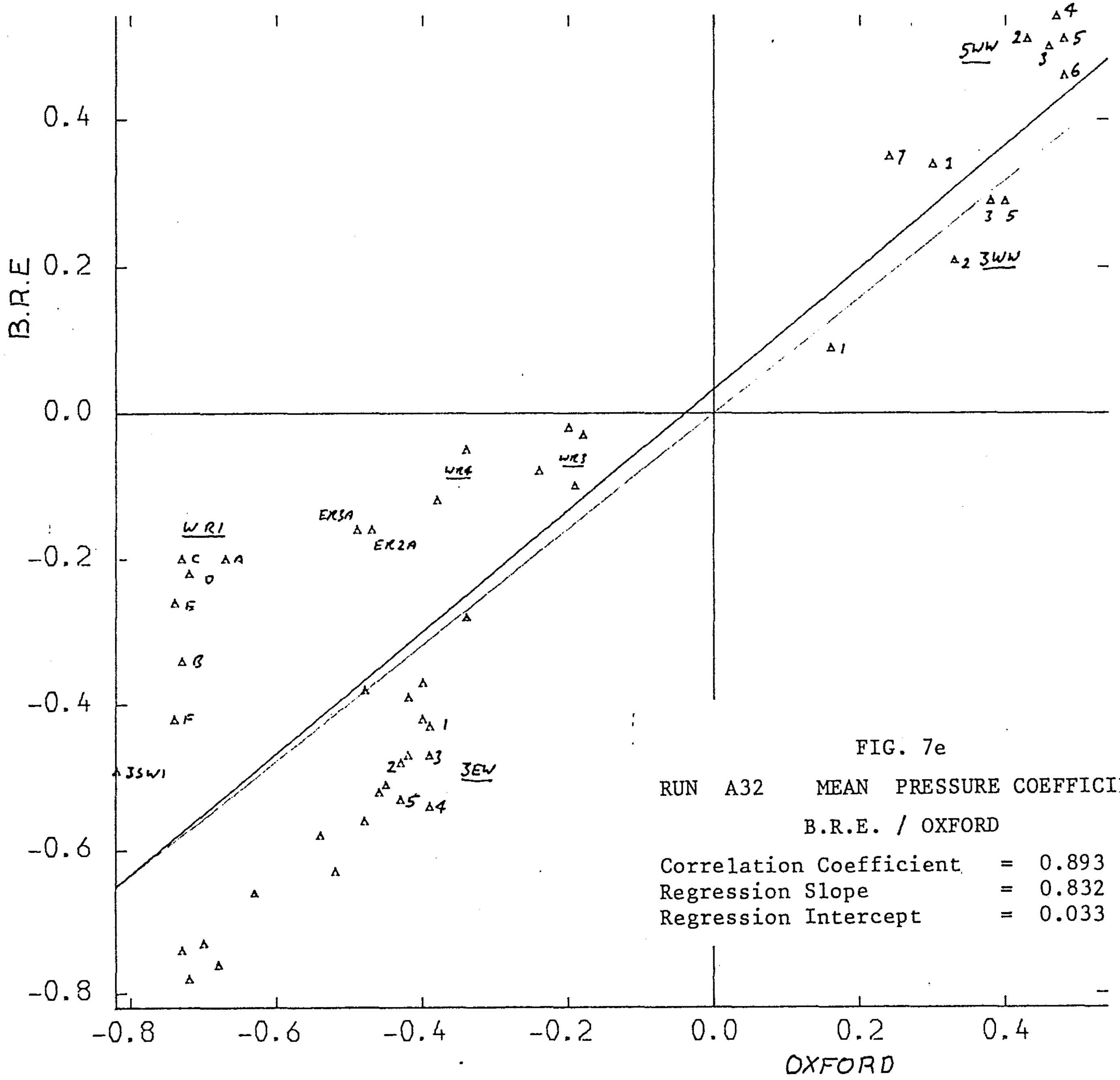

FIG. 7e

RUN A32 MEAN PRESSURE COEFFICIENTS

B.R.E. / OXFORD

Correlation Coefficient	=	0.893
Regression Slope	=	0.832
Regression Intercept	=	0.033

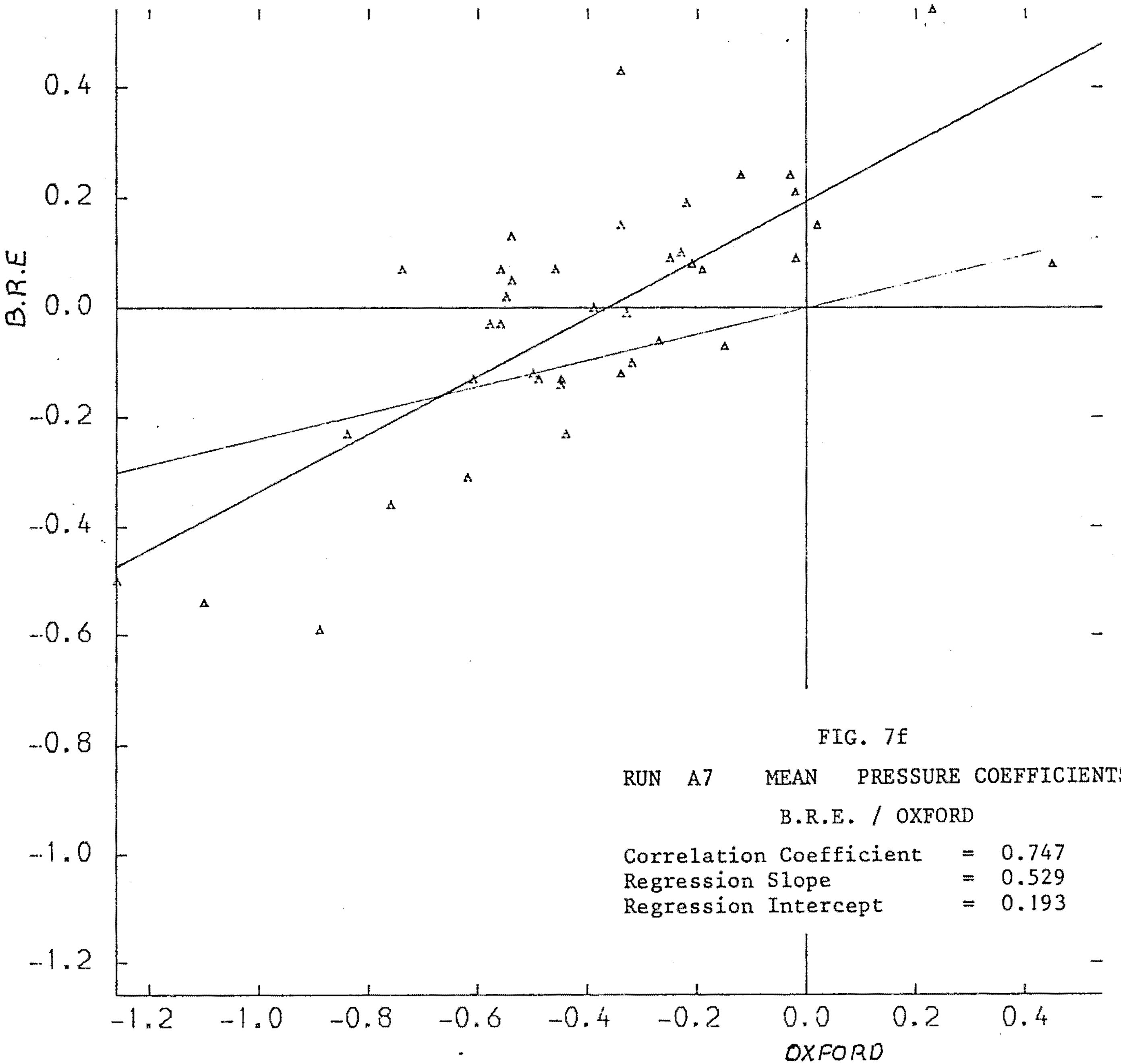

FIG. 7f

RUN A7 MEAN PRESSURE COEFFICIENTS

B.R.E. / OXFORD

Correlation Coefficient = 0.747
Regression Slope = 0.529
Regression Intercept = 0.193

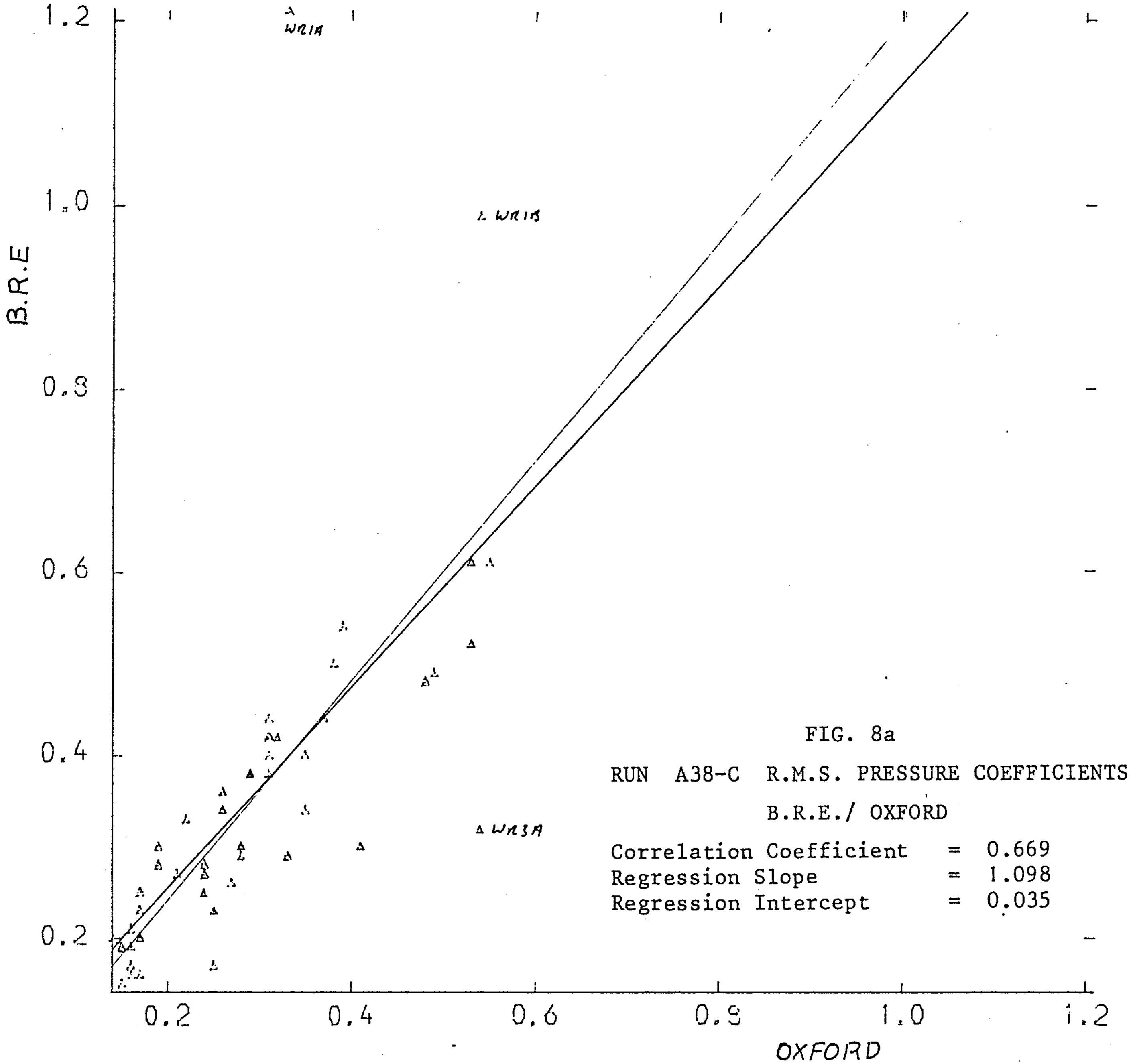

FIG. 8a

RUN A38-C R.M.S. PRESSURE COEFFICIENTS

B.R.E./ OXFORD

Correlation Coefficient = 0.669
Regression Slope = 1.098
Regression Intercept = 0.035

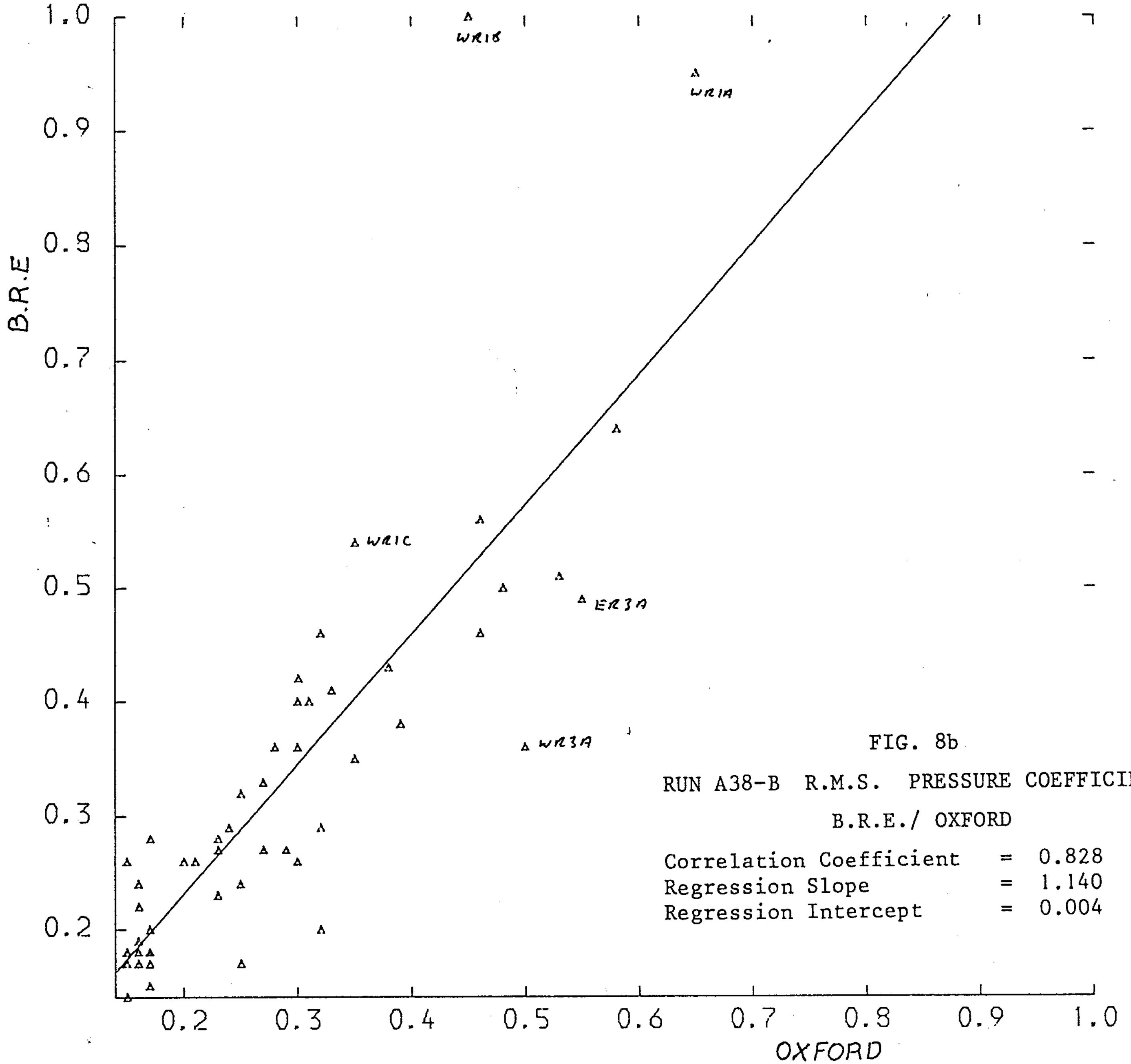

FIG. 8b

RUN A38-B R.M.S. PRESSURE COEFFICIENTS

B.R.E./ OXFORD

Correlation Coefficient = 0.828
Regression Slope = 1.140
Regression Intercept = 0.004

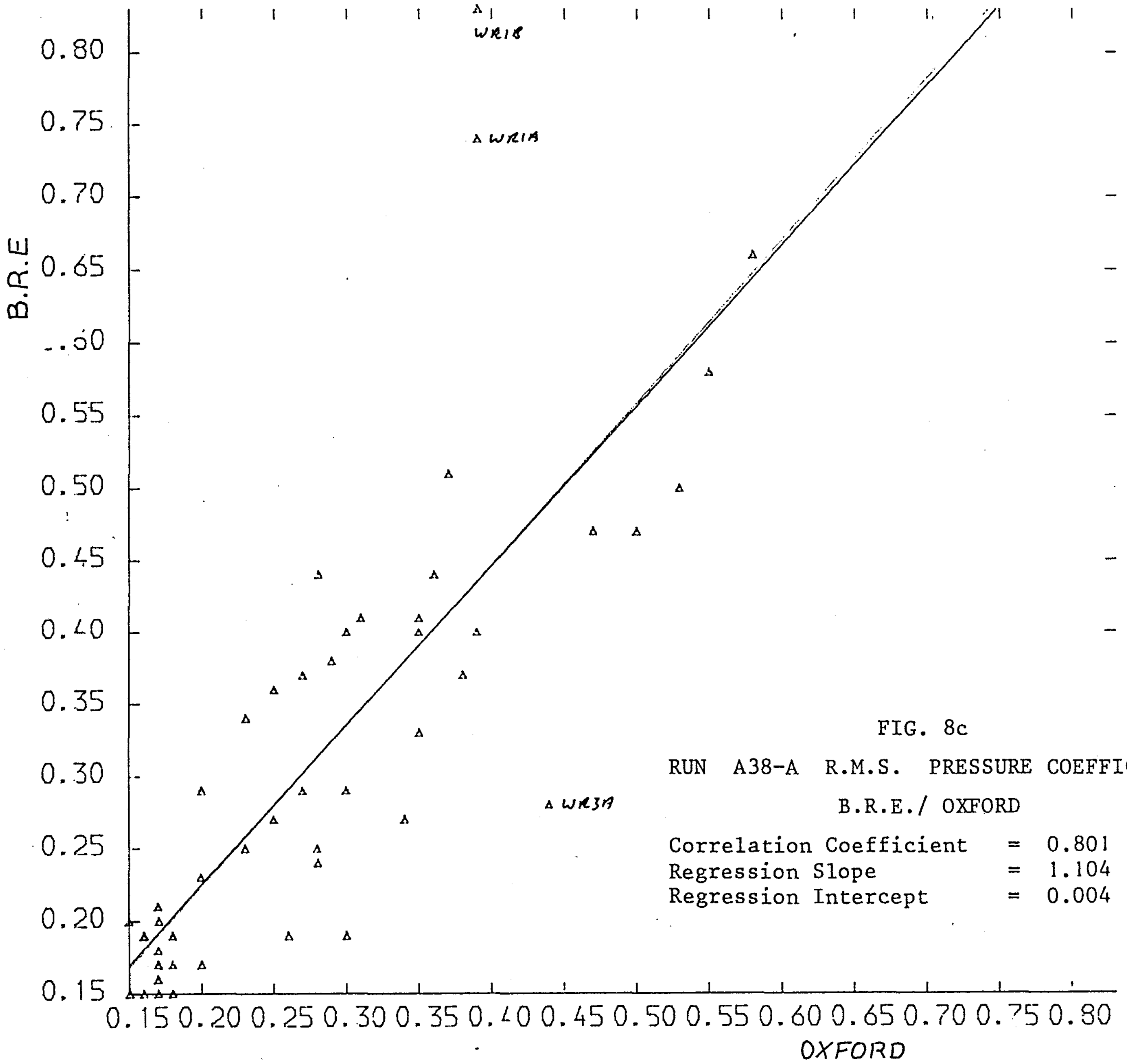

FIG. 8c

RUN A38-A R.M.S. PRESSURE COEFFICIENTS

B.R.E./ OXFORD

Correlation Coefficient = 0.801
Regression Slope = 1.104
Regression Intercept = 0.004

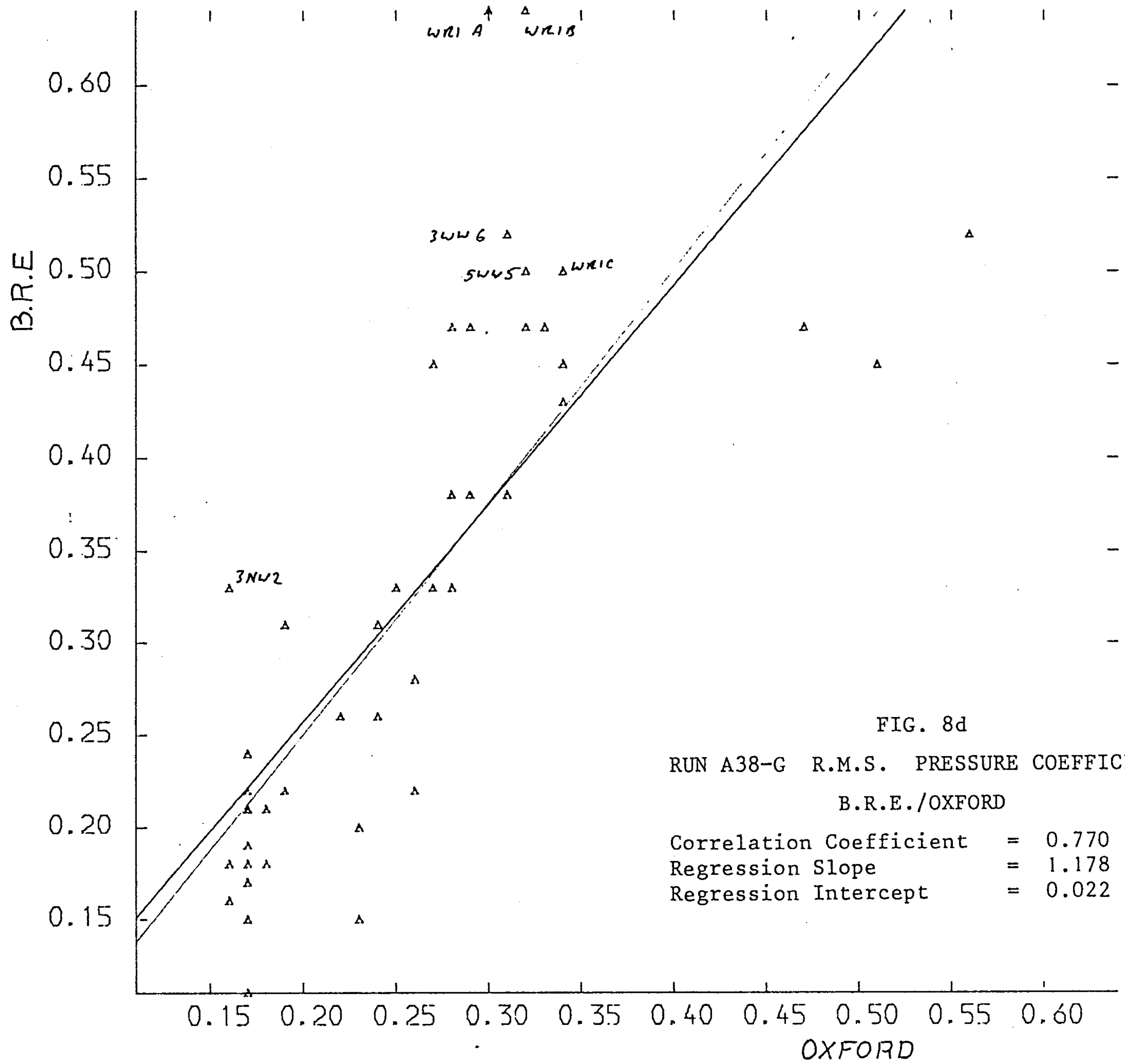

FIG. 8d

RUN A38-G R.M.S. PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.770
Regression Slope = 1.178
Regression Intercept = 0.022

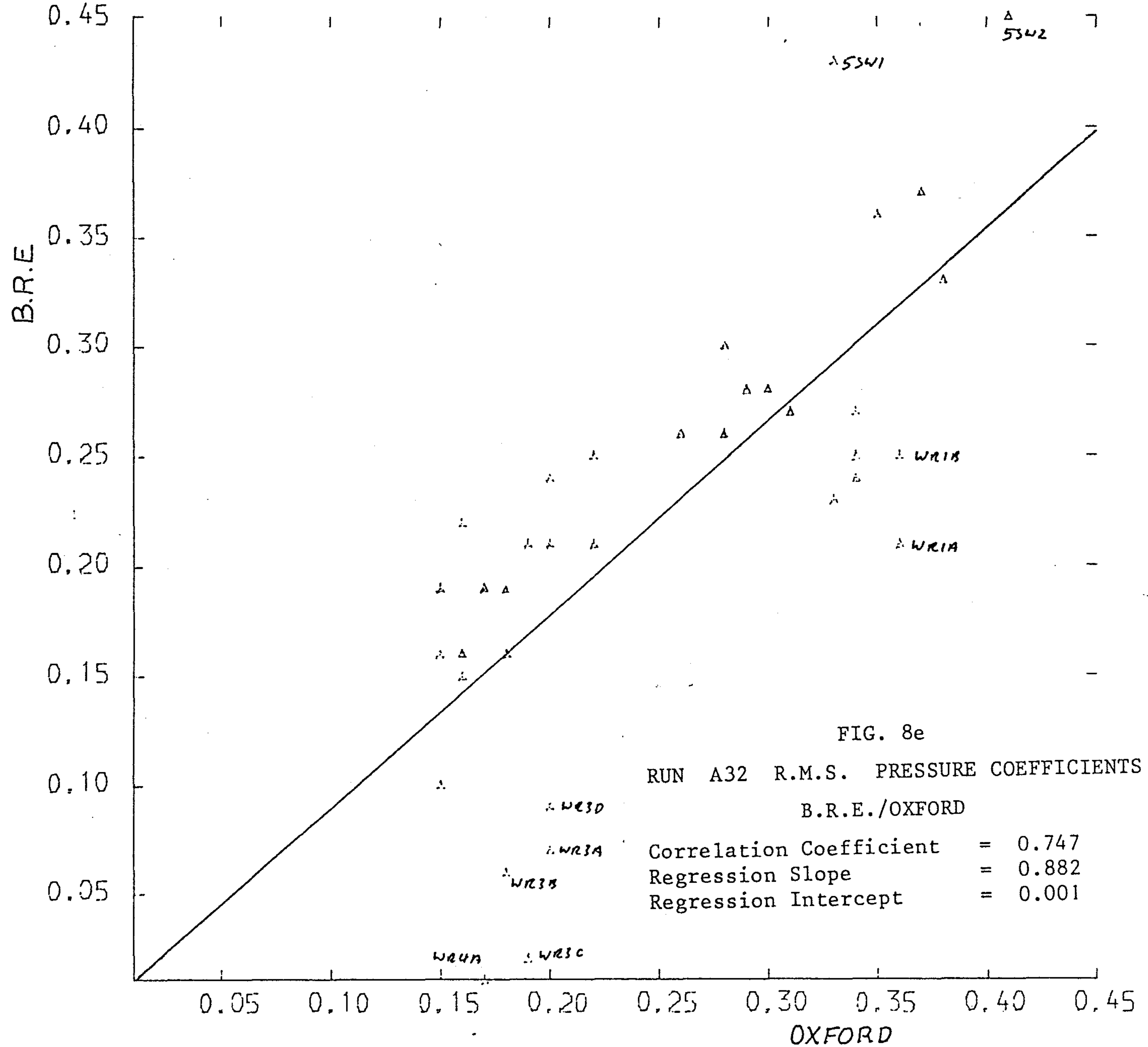

FIG. 8e

RUN A32 R.M.S. PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.747
Regression Slope = 0.882
Regression Intercept = 0.001

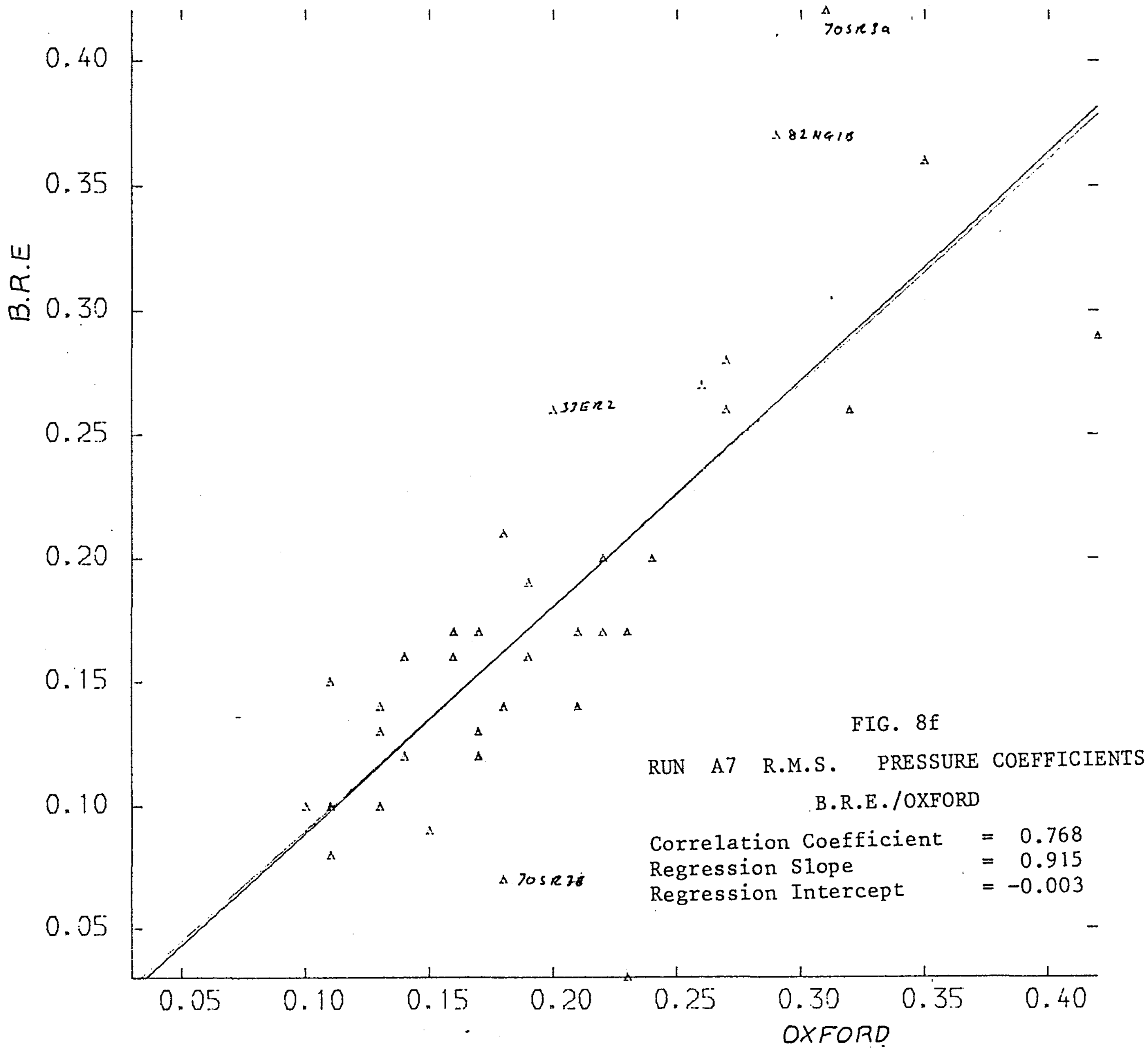

FIG. 8f

RUN A7 R.M.S. PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.768
Regression Slope = 0.915
Regression Intercept = -0.003

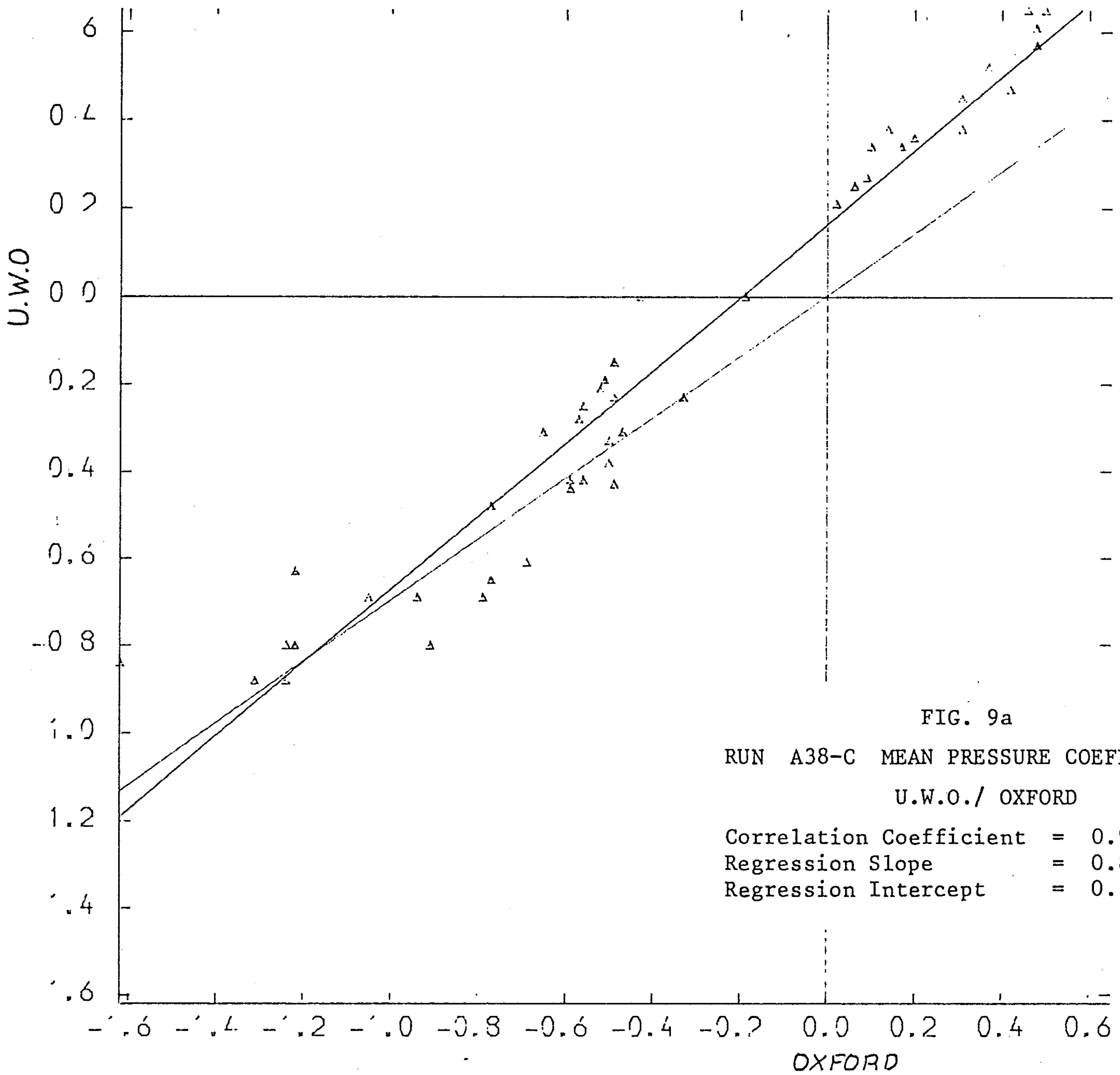

FIG. 9a

RUN A38-C MEAN PRESSURE COEFFICIENTS

U.W.O./ OXFORD

Correlation Coefficient = 0.972
Regression Slope = 0.834
Regression Intercept = 0.163

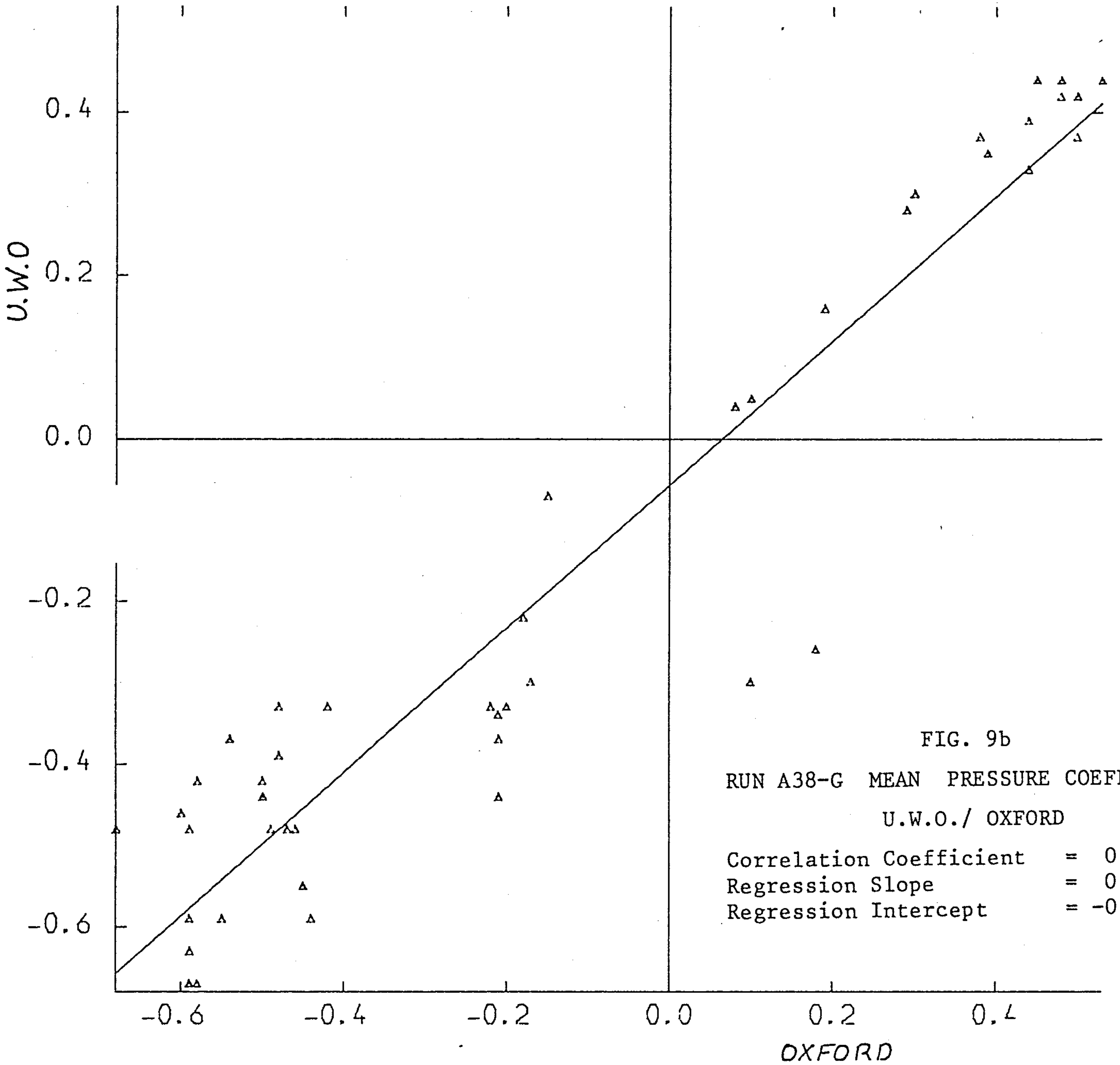

FIG. 9b

RUN A38-G MEAN PRESSURE COEFFICIENTS

U.W.O./ OXFORD

Correlation Coefficient = 0.952
Regression Slope = 0.883
Regression Intercept = -0.056

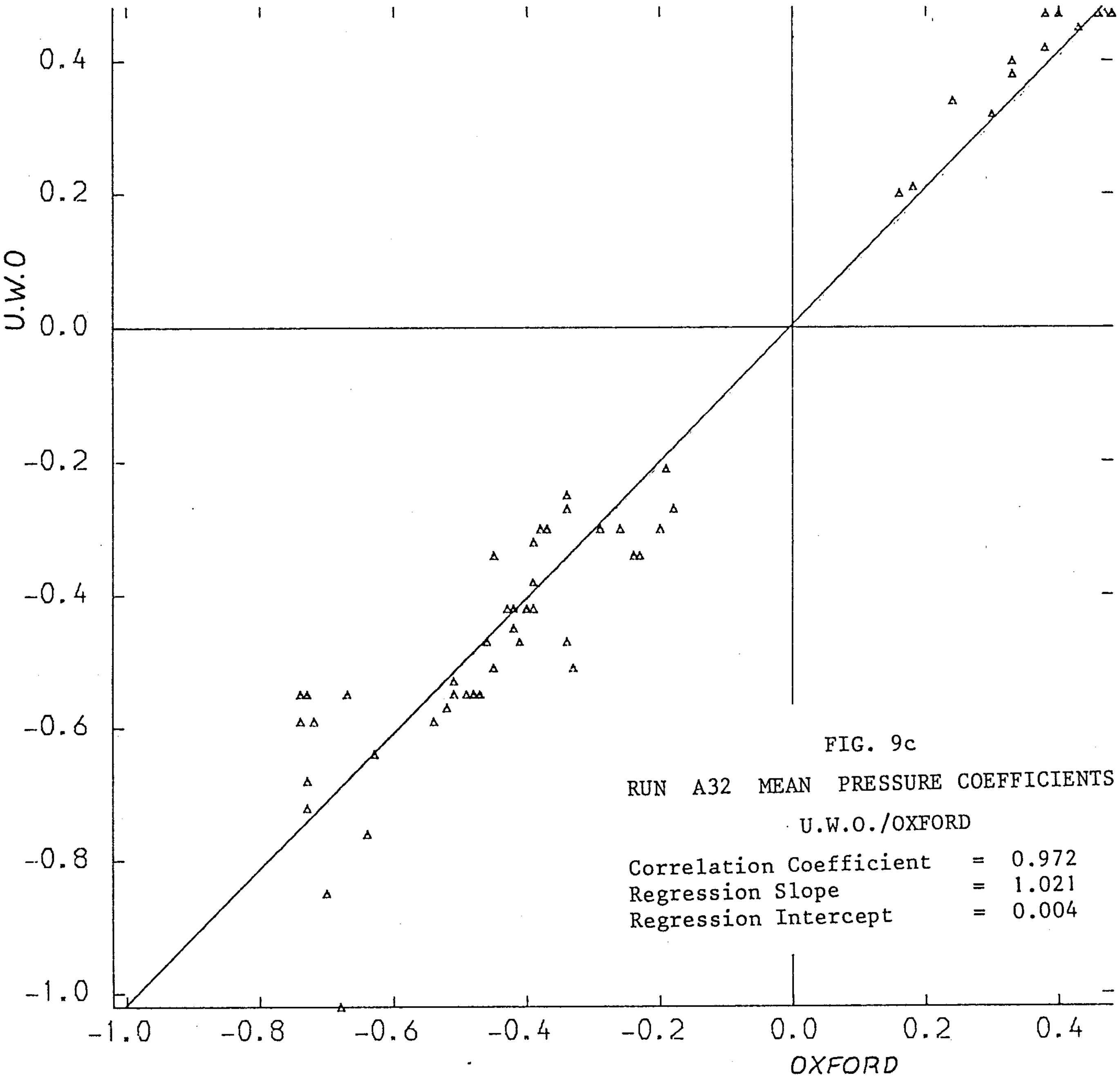

FIG. 9c

RUN A32 MEAN PRESSURE COEFFICIENTS

U.W.O./OXFORD

Correlation Coefficient = 0.972
Regression Slope = 1.021
Regression Intercept = 0.004

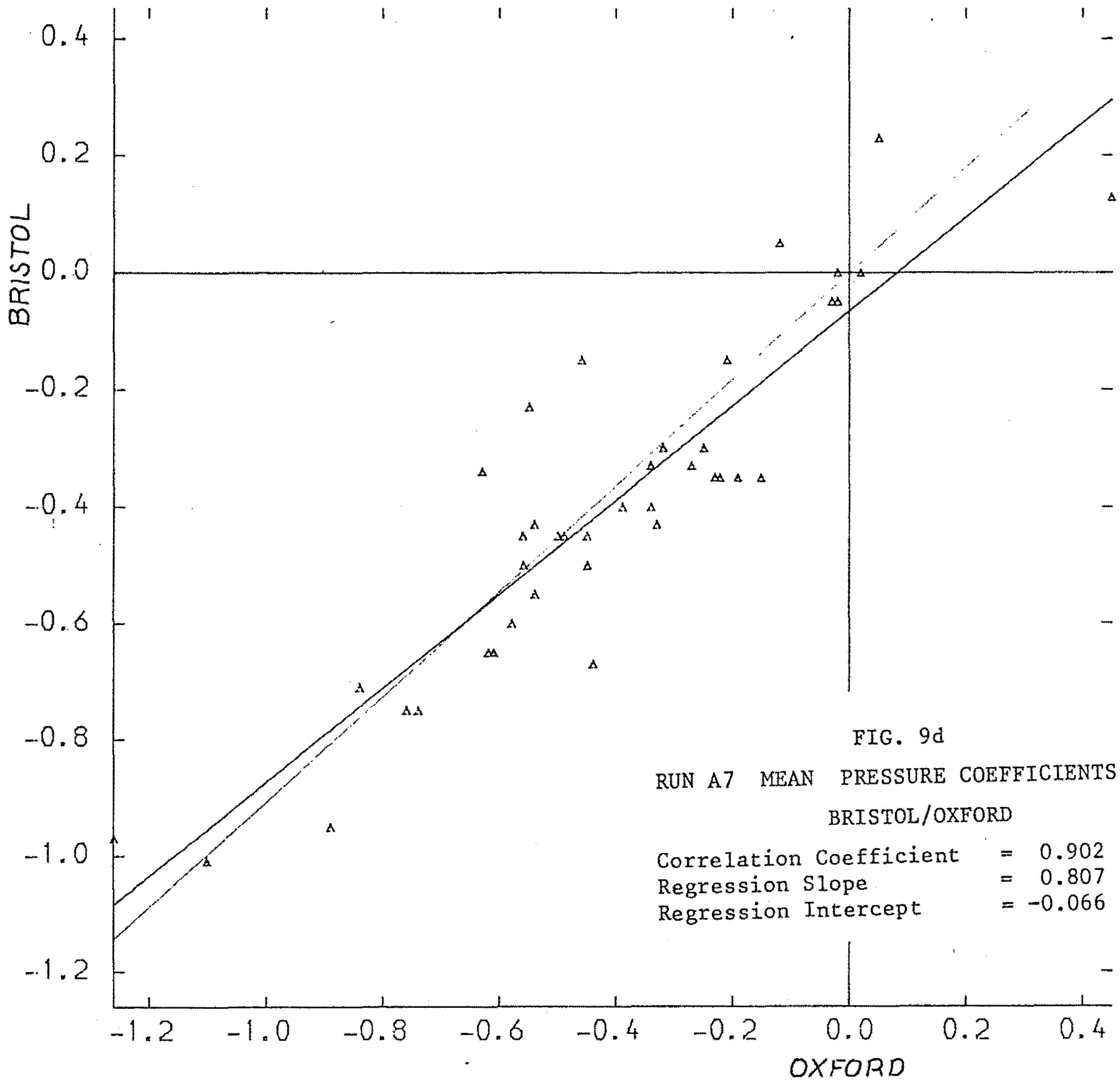

FIG. 9d

RUN A7 MEAN PRESSURE COEFFICIENTS

BRISTOL/OXFORD

Correlation Coefficient = 0.902
Regression Slope = 0.807
Regression Intercept = -0.066

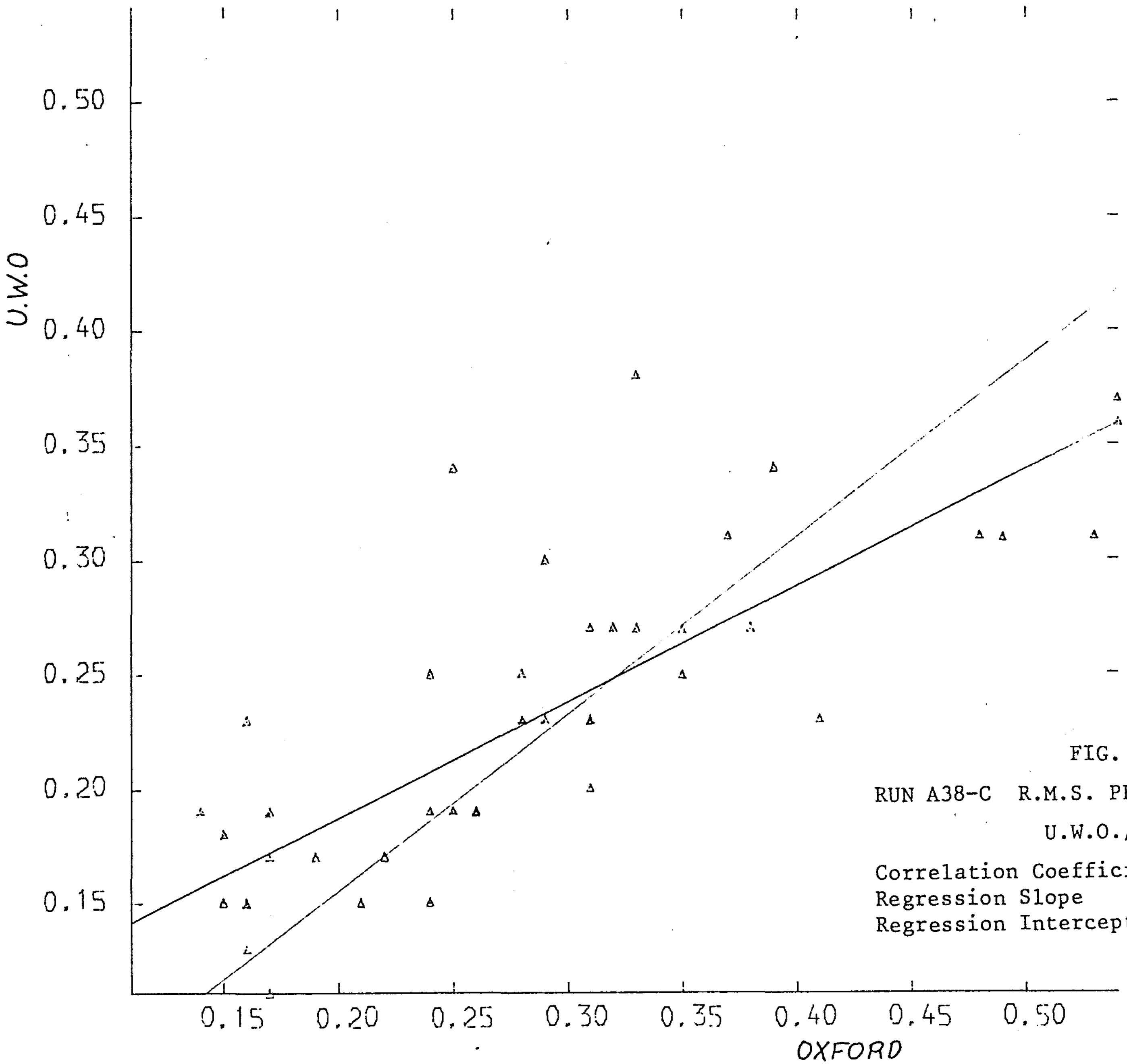

FIG. 10a

RUN A38-C R.M.S. PRESSURE COEFFICIENTS

U.W.O./OXFORD

Correlation Coefficient	=	0.812
Regression Slope	=	0.508
Regression Intercept	=	0.086

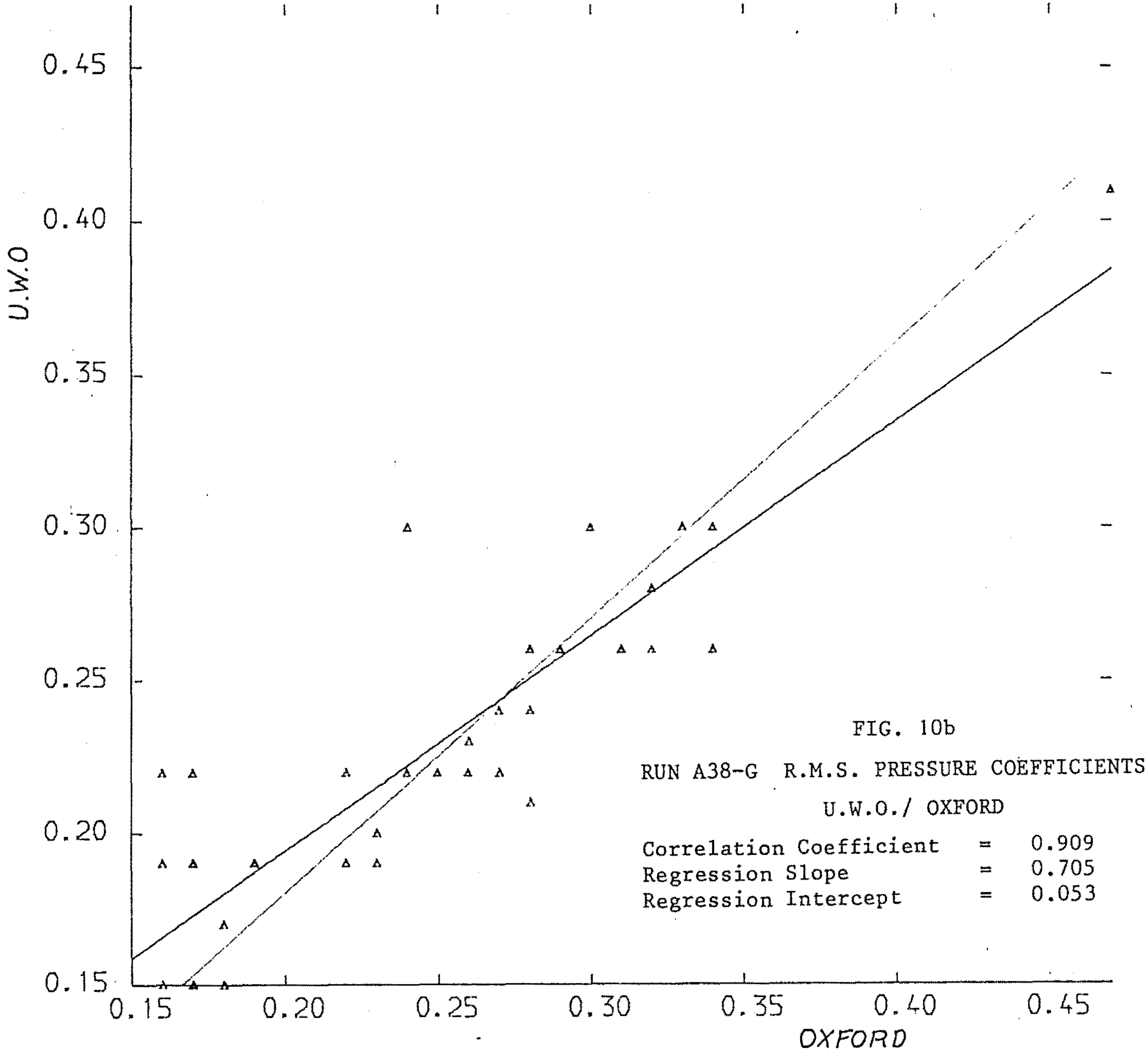

FIG. 10b

RUN A38-G R.M.S. PRESSURE COEFFICIENTS

U.W.O./ OXFORD

Correlation Coefficient = 0.909
Regression Slope = 0.705
Regression Intercept = 0.053

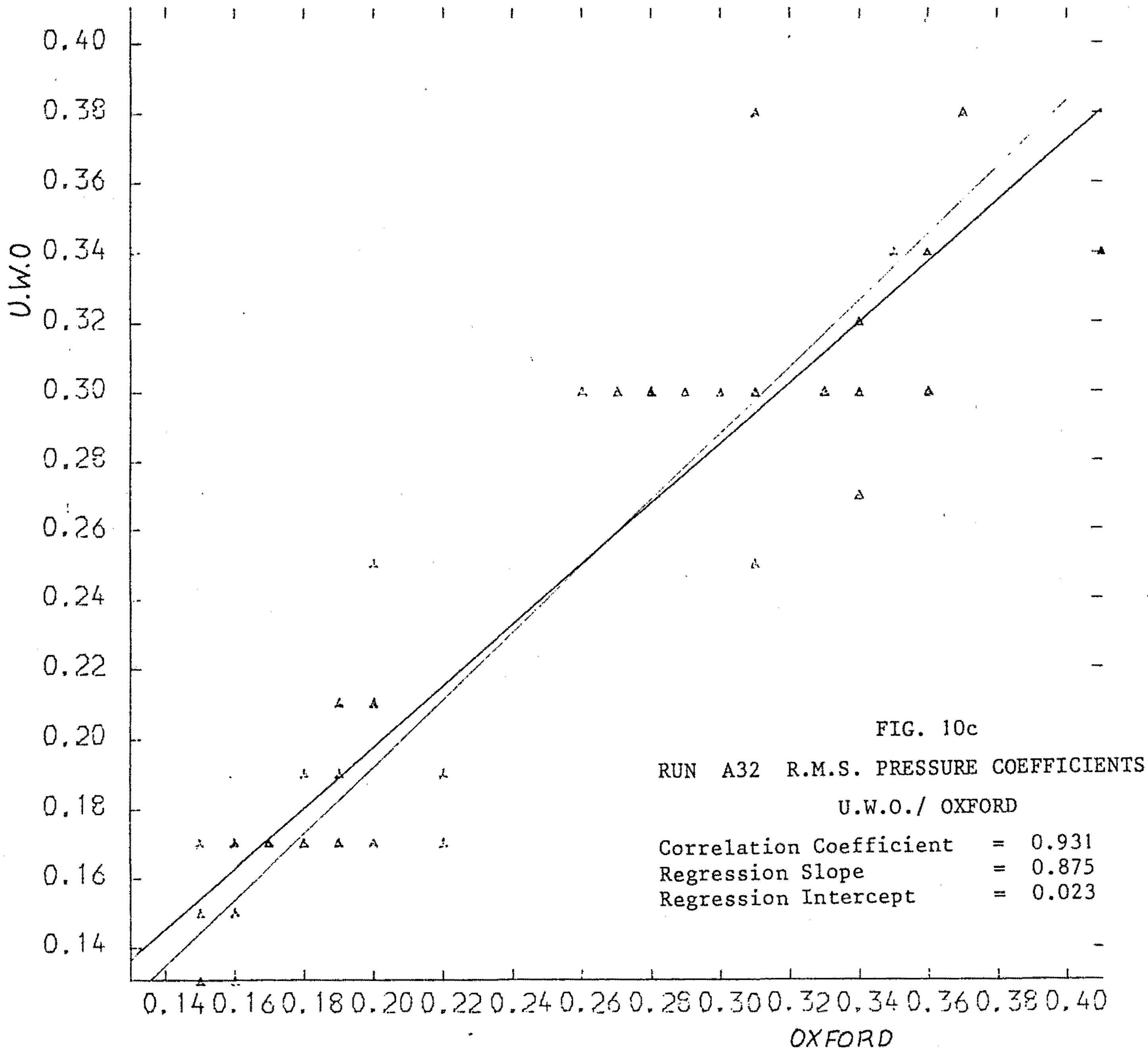

FIG. 10c

RUN A32 R.M.S. PRESSURE COEFFICIENTS

U.W.O./ OXFORD

Correlation Coefficient = 0.931
Regression Slope = 0.875
Regression Intercept = 0.023

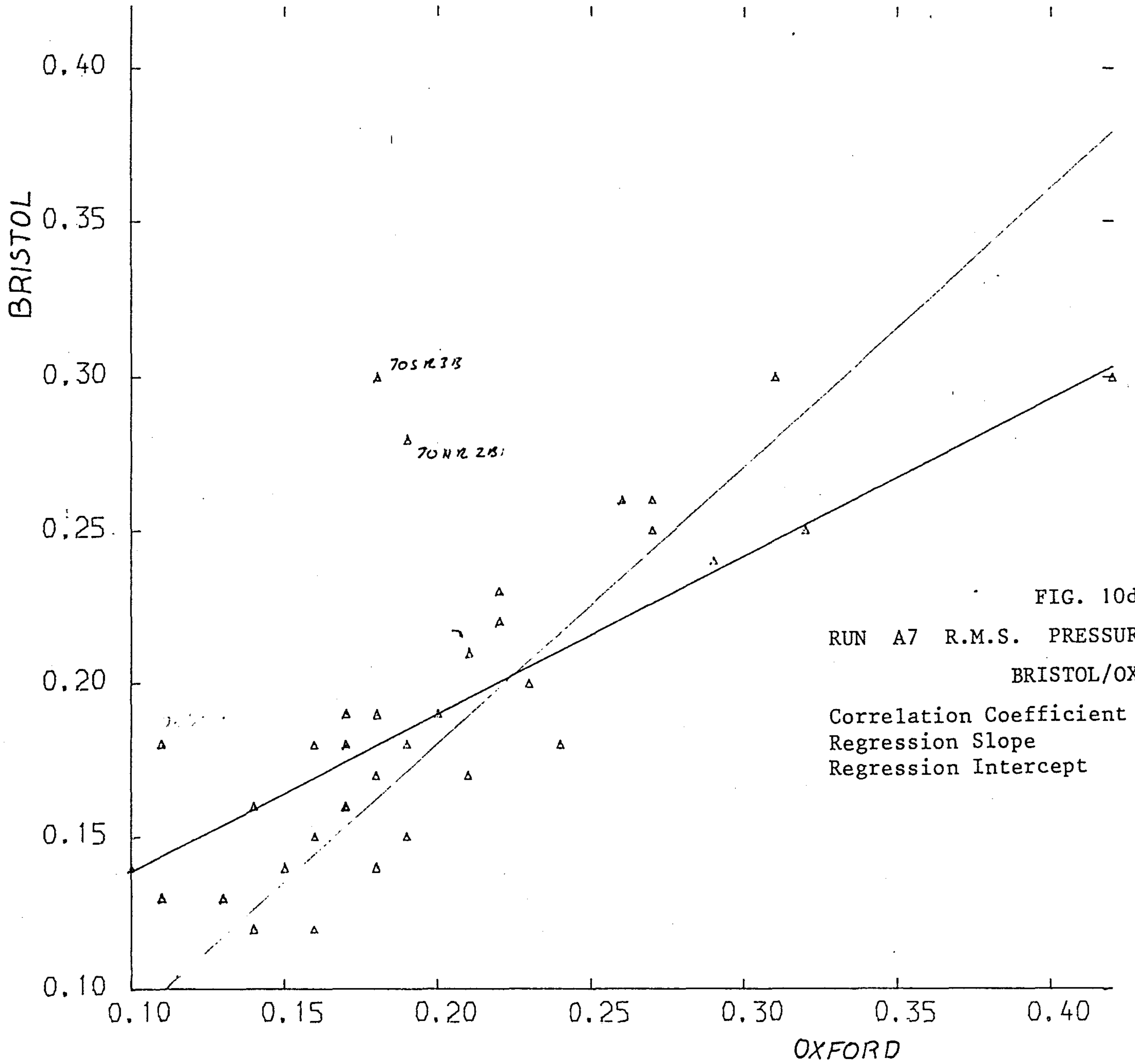

FIG. 10d

RUN A7 R.M.S. PRESSURE COEFFICIENTS

BRISTOL/OXFORD

Correlation Coefficient = 0.679
Regression Slope = 0.516
Regression Intercept = 0.086

Taking an overall view of the correlation coefficients shown in Table 3, it may be observed that agreement with other wind tunnel results is considerably better than with full scale data. If the regression slopes are considered, then there is also an indication that agreement with full-scale data is better in the case of R.M.S. pressure coefficients than for mean pressure coefficients.

The disparity in the mean pressure results has already been discussed in part one, where the difficulty in establishing a reliable reference pressure was examined. Here, with more test house data available, the same pattern of mean pressure discrepancies is confirmed. The regression lines almost all indicate a tendency for the Oxford mean pressures to be lower than the full scale mean pressures, while the correlation coefficients between 0.7 and 0.8 indicate quite severe scatter.

A closer examination of Fig. 7 reveals the interesting fact that the points plotted seem to fall into two distinct subsets. In each plot, one subset could be said to be grouped quite closely along the notional perfect agreement line of slope 1, whilst the other might be represented by a line of lower slope, but positioned above the ideal line.

Identifying some of these points with the aid of the appropriate table in chapter 4 (see Table 3 for cross-references) it is apparent, although with some exceptions, that it is the wall pressures which agree well whilst the roof pressures do not. Figure 7e has been marked to illustrate this impression and it is particularly noticeable that the worst discrepancies occur near the upstream roof edge. This, and other examples support the suggestion that the Oxford model has produced more pronounced roof suction areas near windward corners than were recorded at full scale. Other instances of this effect may be found near the windward gable edges when the wind direction has a significant component along the building axis.

The much higher correlation coefficients (Table 3) found in the comparison with mean pressures from Western Ontario (Apperley et al 1978) is consistent with the absence of any such pattern of discrepancies in the comparison of wind tunnel results of Figure 9.

Although transducer faults are a likely source of spurious individual results in the full scale experiments, it is unlikely that this would lead to a consistent pattern over a series of results taken at different times. Likewise, the agreement pattern between the two independent wind tunnel studies suggests that the discrepancy is not due to a fault in the wind tunnel instrumentation.

If these two propositions are true, then it must be concluded that the two small scale wind tunnel experiments have, in this case, exhibited a scale-effect problem in regions where corner separations might be expected to occur.

A curious exception to this generalisation exists in respect of the extreme windward corner holes WR1A, WR1B. In run A38 where the onset wind blows almost diagonally against this corner, the agreement between Oxford and full scale mean pressures for these holes is uncharacteristically good. At the same time however, Figure 8a to c shows that the full scale R.M.S. pressure coefficients for these two holes are exceptionally high. Run A32 does not show this effect which seems therefore to be a scale effect associated exclusively with diagonal flows.

With the exception just discussed, the R.M.S. pressure correlations of Figs. 8 and 10 show no striking features which stand out from the general scatter. The regression slopes show good agreement between the tunnel and full scale results with no general windward edge patterns which might help to explain the mean pressure discrepancies.

Comparisons with the U.W.O. tunnel in Fig. 10 show slightly better correlation coefficients. Also the distribution of points plotted is such that the agreement between the two tunnels is perhaps rather better than the very sensitive regression line slopes suggest.

5.2 Evidence from Spectral Analysis

Having drawn the conclusion from an examination of mean and R.M.S. pressures, that windward roof-edge flows are suspect on small scale models, it is worth examining some of the relevant spectral information to see whether any corresponding features exist in the comparison between the Oxford and full scale results. Selecting first a 'safe' pressure tapping for which the agreement in other respects is good, Figure 11 shows a comparison of Oxford and B.R.E. spectra for hole 5WW3. This comparison forms a control for the second, which is for hole WR1E at the windward edge of the roof and is displayed in Figure 12. In both cases, the Oxford spectrum is compared with two full scale spectra relating to the nominally identical runs A7 and A32 respectively. The presentation of two cases like this helps to establish the standard of judgement which must be applied when looking for differences between the model scale and full scale results.

Applying this standard of rather subjective judgement to the comparisons of Figures 11 and 12, the only obvious discrepancy, which is common to both pressure tappings, is an excess of energy in the tunnel spectrum centres around 0.02 Hz (0.5 to 0.6 Hz in the tunnel). At the time of writing, some suspicion rests upon the low-frequency stability of the tunnel speed control system. However, this does not effect the opinion of the authors that there is no significant difference between the two tappings in regard to the quality of agreement between the model scale and full-scale results.

Linking this remark with the previous observations of Chapter 5.1 it may now be noted that the mean static pressure discrepancy found near the windward roof edges is not matched by an observable discrepancy either

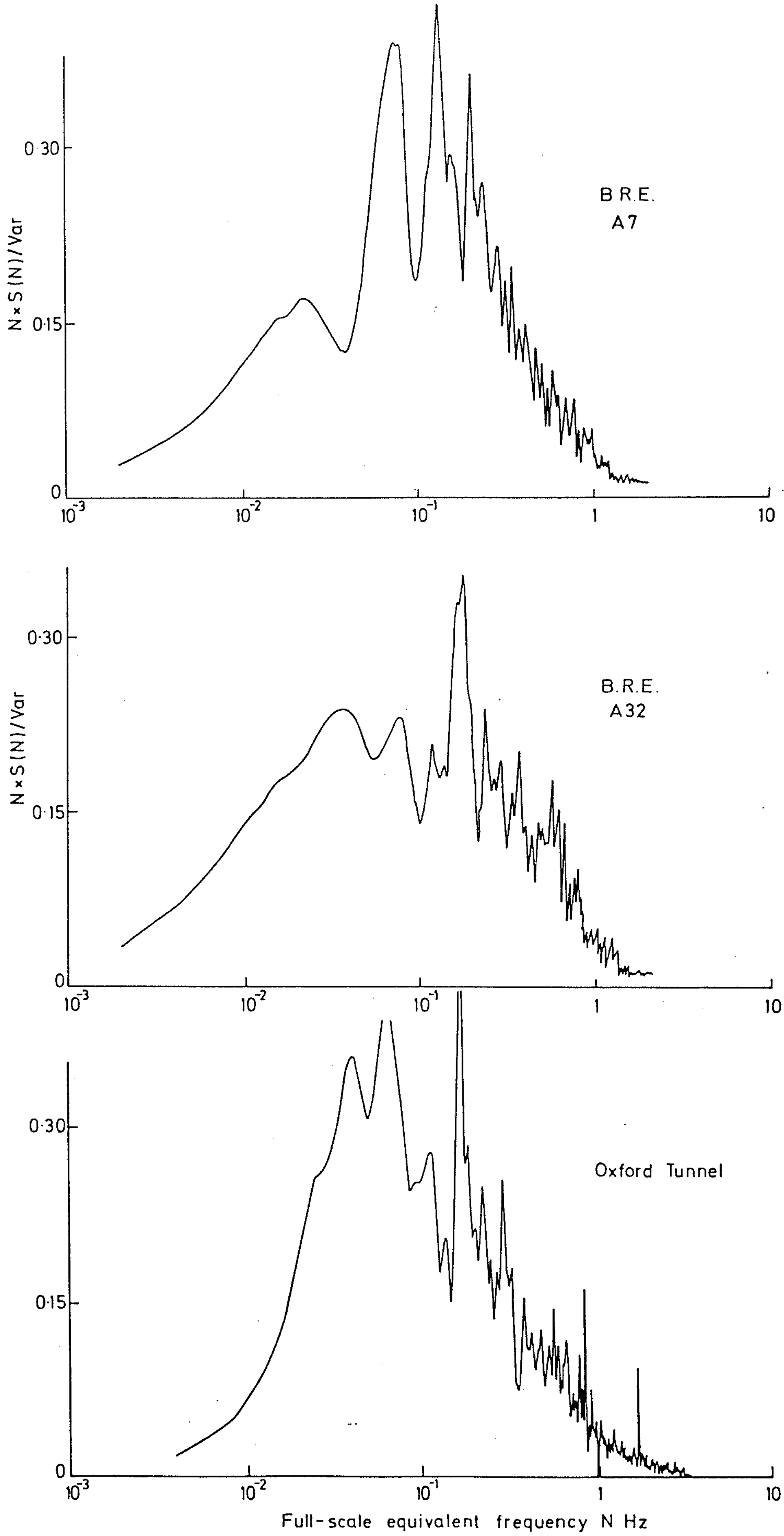

Figure 11

Spectrum comparisons for hole 5WW3

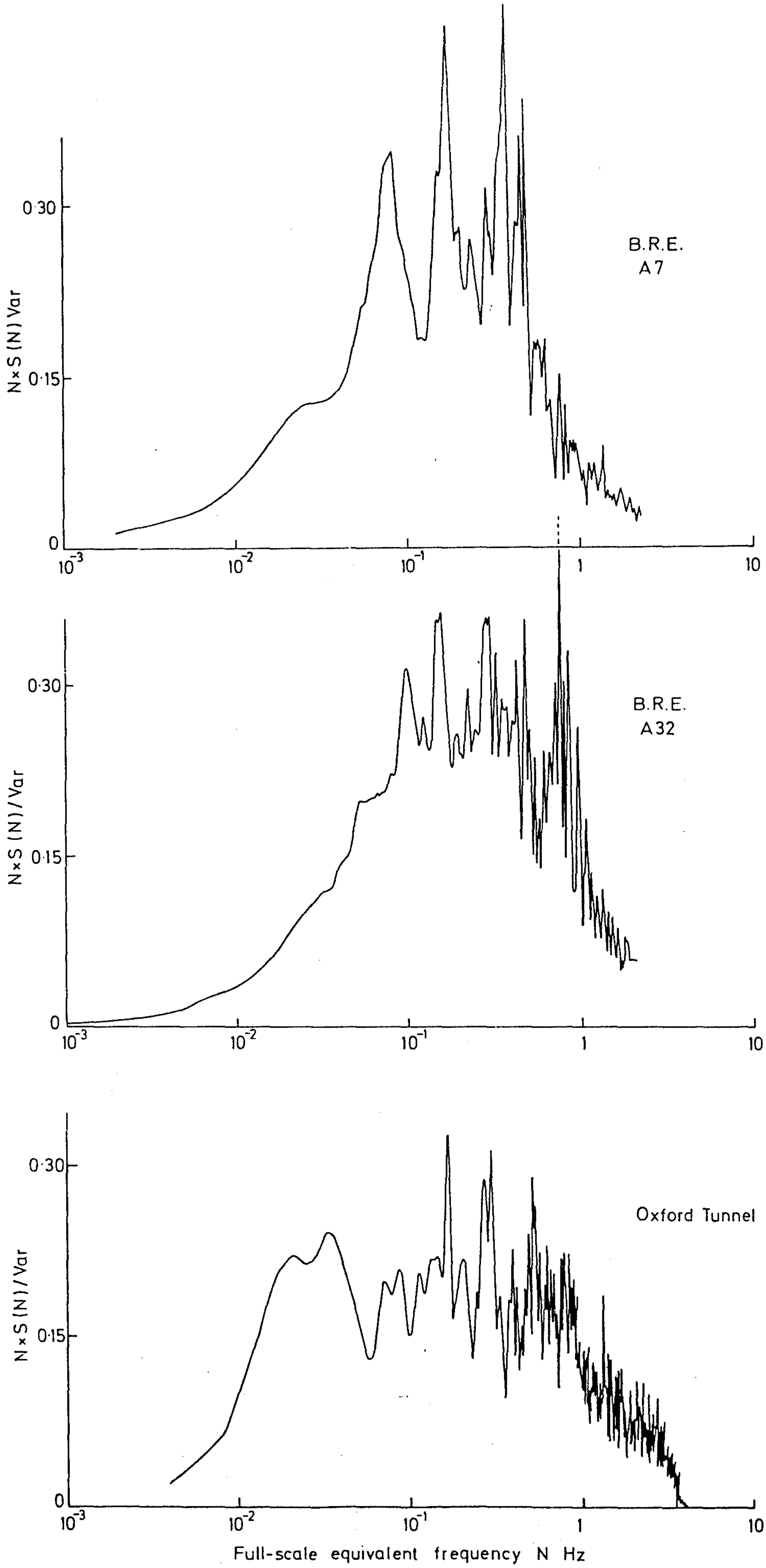

Figure 12

Spectrum comparisons for hole WR1E

in the R.M.S. pressure or in the frequency content of the signal. Following this growing evidence that the discrepancy arises merely as a mean value shift with no change in the nature of the fluctuating pressure component, it is now of interest to examine the extreme value data. If the probability distribution for the pressures is genuinely unchanged but merely shifted in value, then it is to be expected that the extreme values will also be shifted but that the reduced extreme pressures will be unchanged.

5.3 Comparison of Extreme Pressures

Because of the fundamental differences discussed in chapter 4 between the present extreme-value presentation and the single point extremes reported both by Eaton and Mayne (1974) and by Apperley et al (1978) it is not easy to make a meaningful comparison.

Because the present experiments were designed to match the 17 minute full scale observation period of the B.R.E. experiments, the dispersion of the resulting extreme value data is unusually large compared with the mode. As a result, the range between the 0.99 and 0.01 quantiles, where most single sample extremes would be expected to fall, is surprisingly wide. These ranges have been tabulated partly to illustrate the futility of making any comparison or prediction in terms of single sample extremes.

On the other hand, when a linear regression analysis is used to make a generalised comparison involving a large number of separate cases, then it becomes reasonable to define agreement in terms of the modes, since in each case the mode represents the most likely value. Following this reasoning, the linear regressions presented in Figures 13 and 14 compare the single sample extremes from other experiments with the mode values taken from

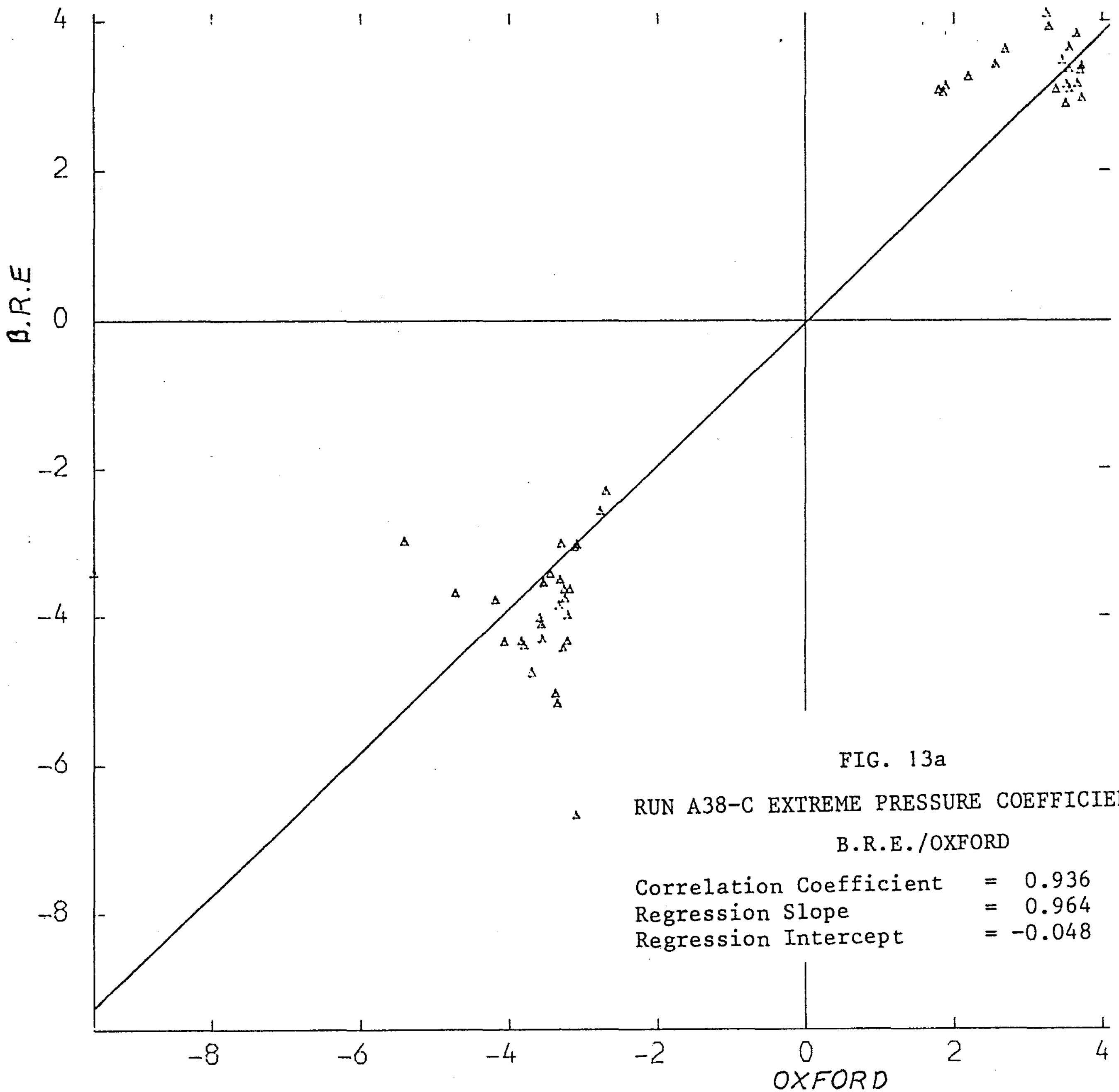

FIG. 13a

RUN A38-C EXTREME PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.936
Regression Slope = 0.964
Regression Intercept = -0.048

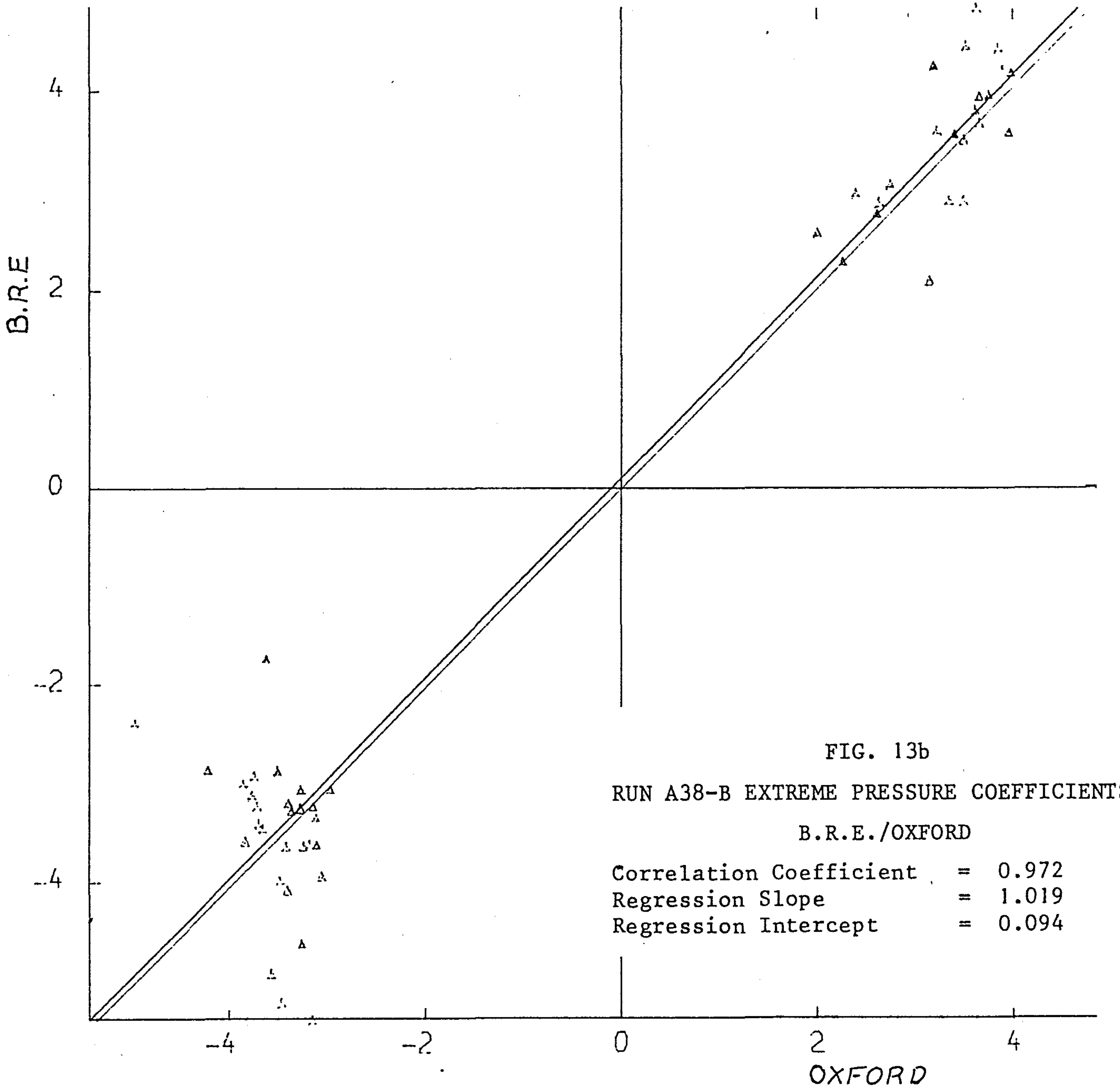

FIG. 13b

RUN A38-B EXTREME PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.972
Regression Slope = 1.019
Regression Intercept = 0.094

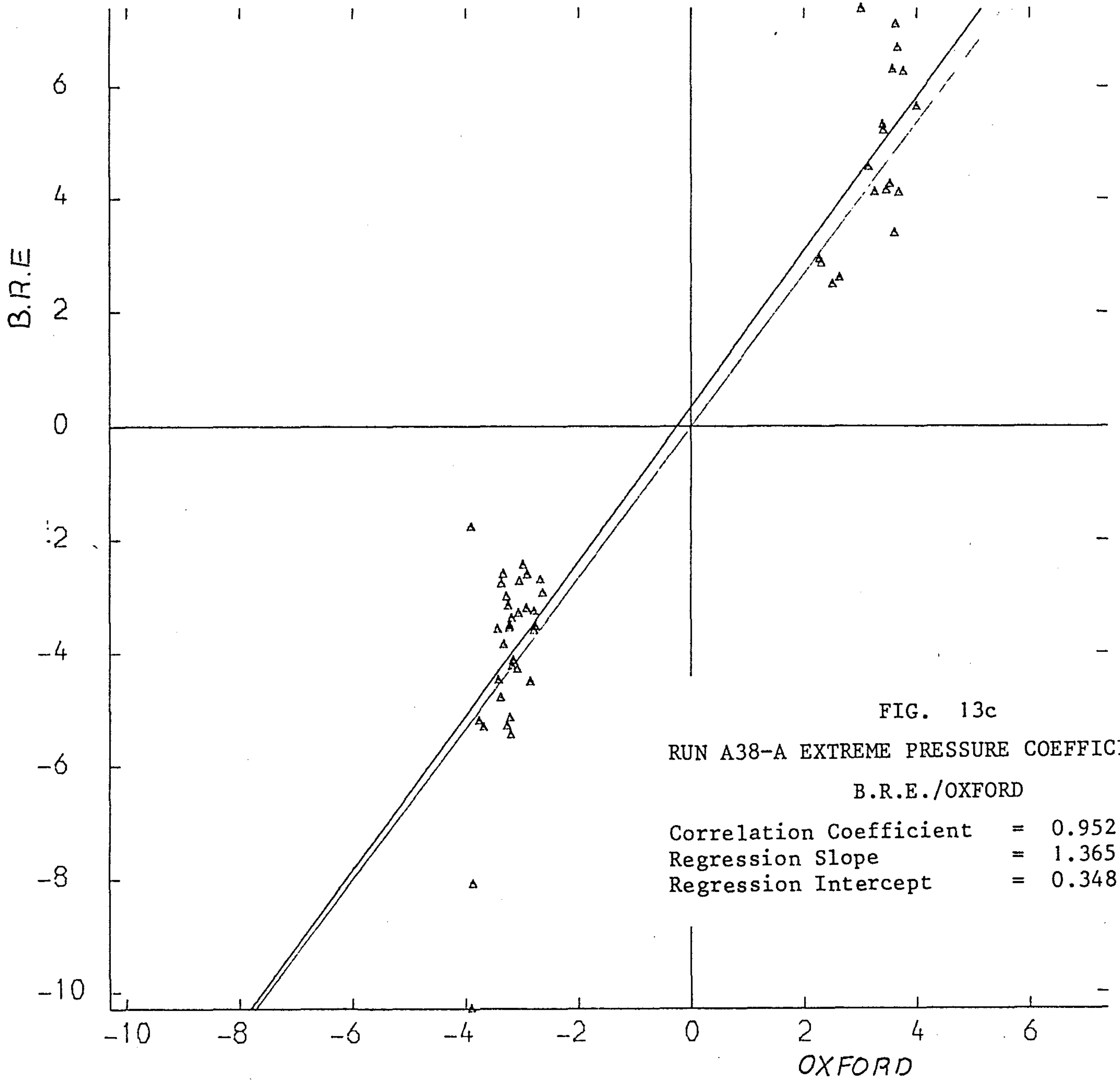

FIG. 13c

RUN A38-A EXTREME PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.952
Regression Slope = 1.365
Regression Intercept = 0.348

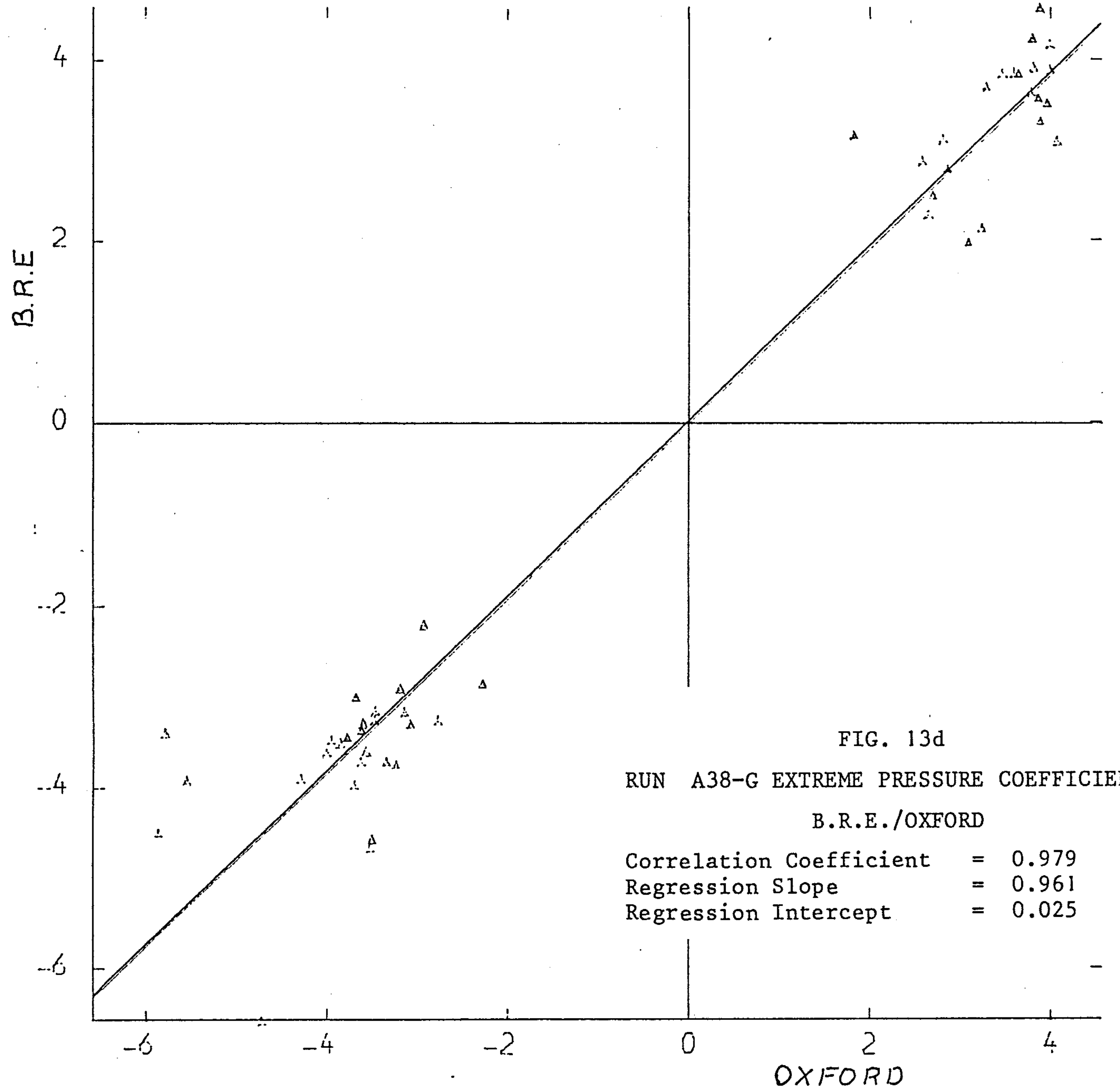

FIG. 13d

RUN A38-G EXTREME PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.979
Regression Slope = 0.961
Regression Intercept = 0.025

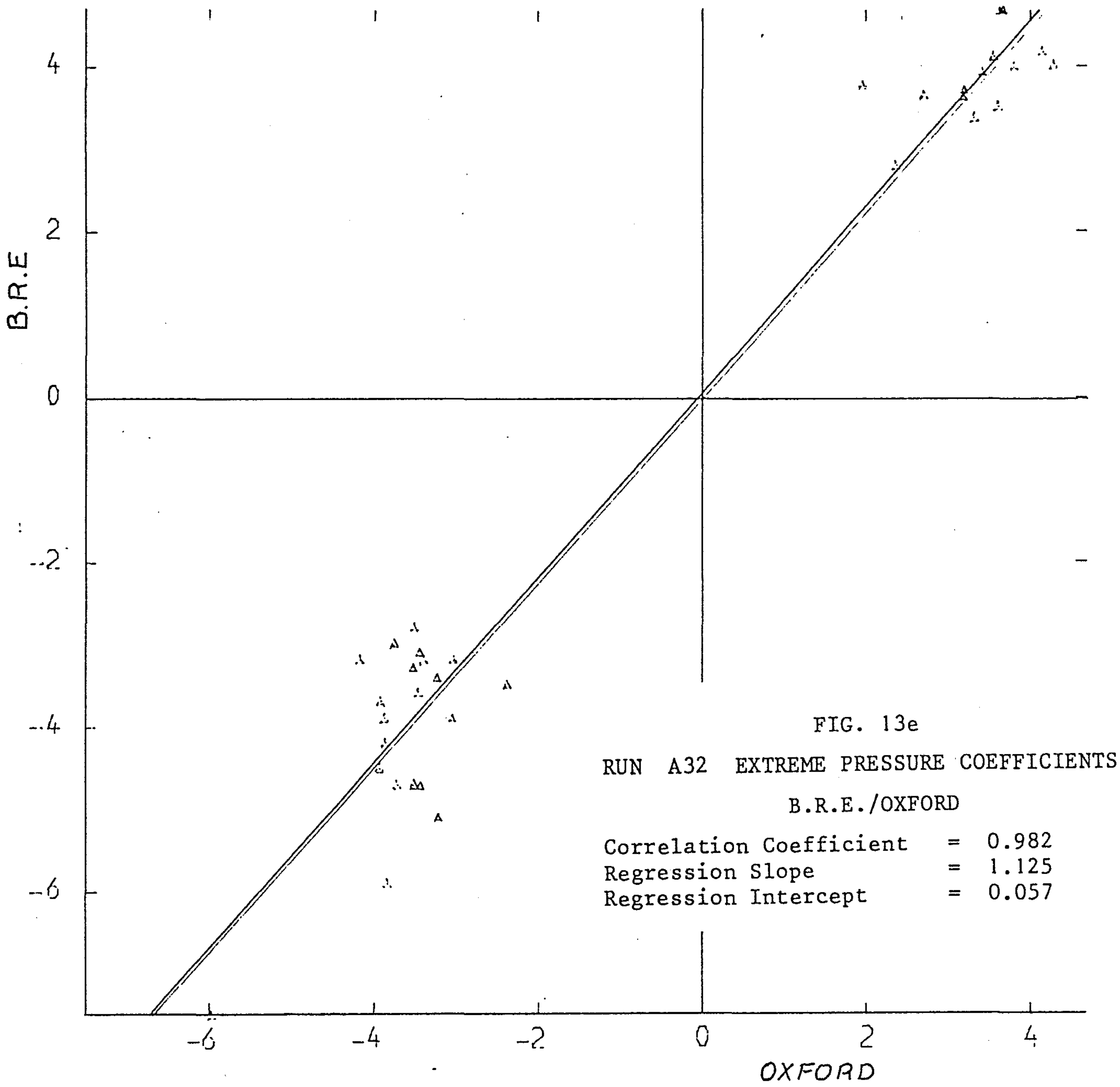

FIG. 13e

RUN A32 EXTREME PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.982
Regression Slope = 1.125
Regression Intercept = 0.057

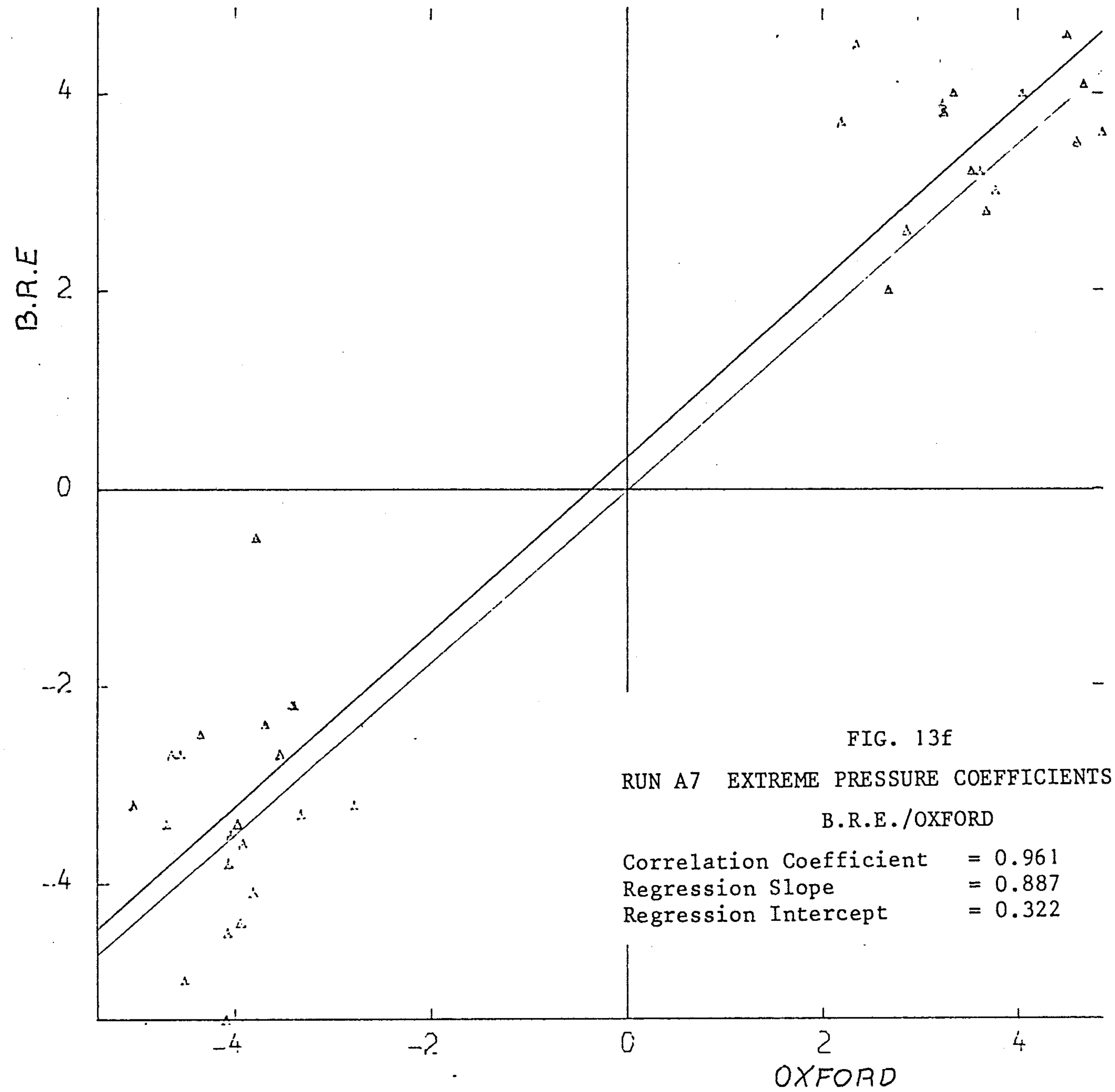

FIG. 13f

RUN A7 EXTREME PRESSURE COEFFICIENTS

B.R.E./OXFORD

Correlation Coefficient = 0.961
Regression Slope = 0.887
Regression Intercept = 0.322

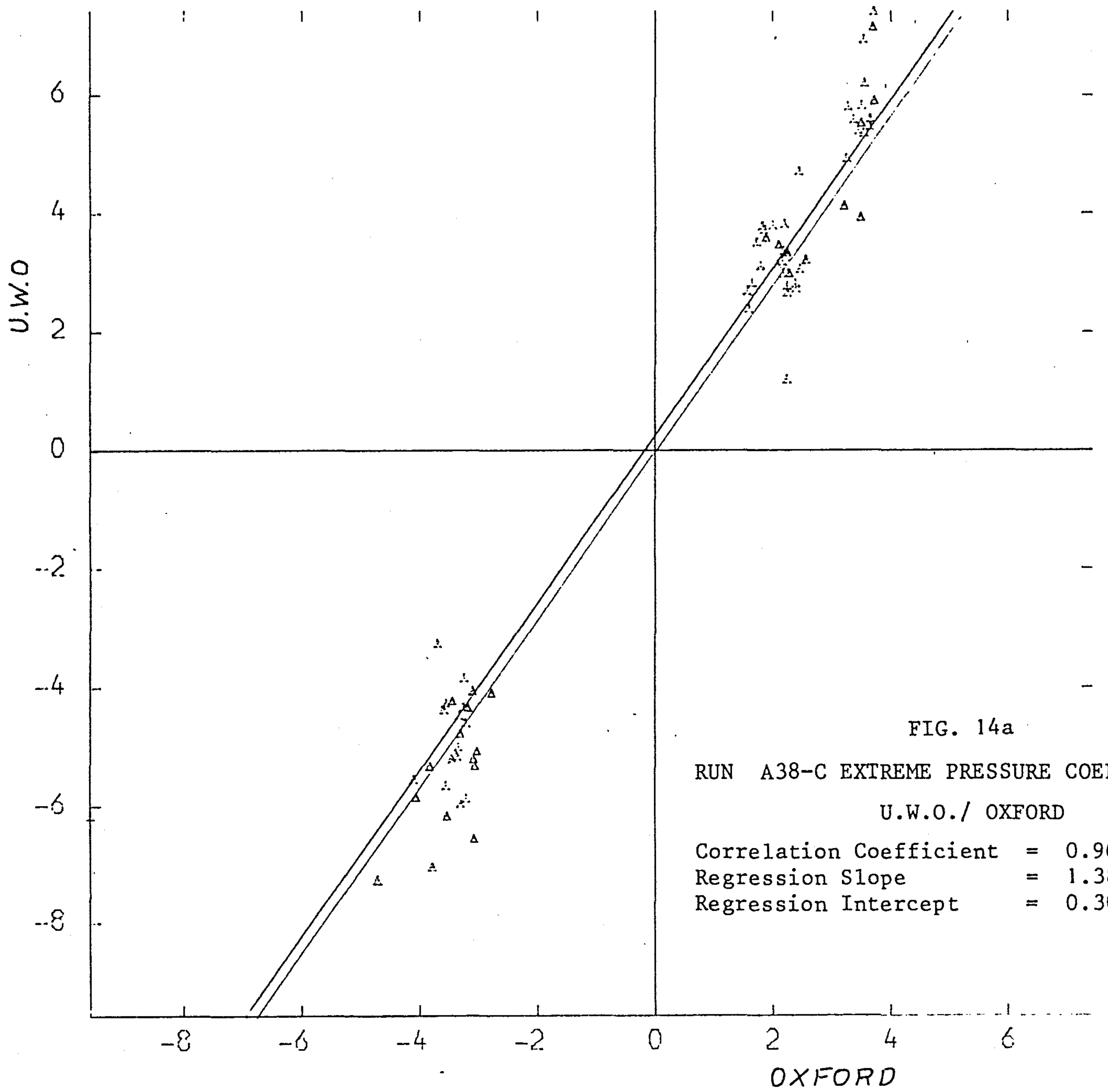

FIG. 14a

RUN A38-C EXTREME PRESSURE COEFFICIENTS

U.W.O./ OXFORD

Correlation Coefficient = 0.967
Regression Slope = 1.388
Regression Intercept = 0.300

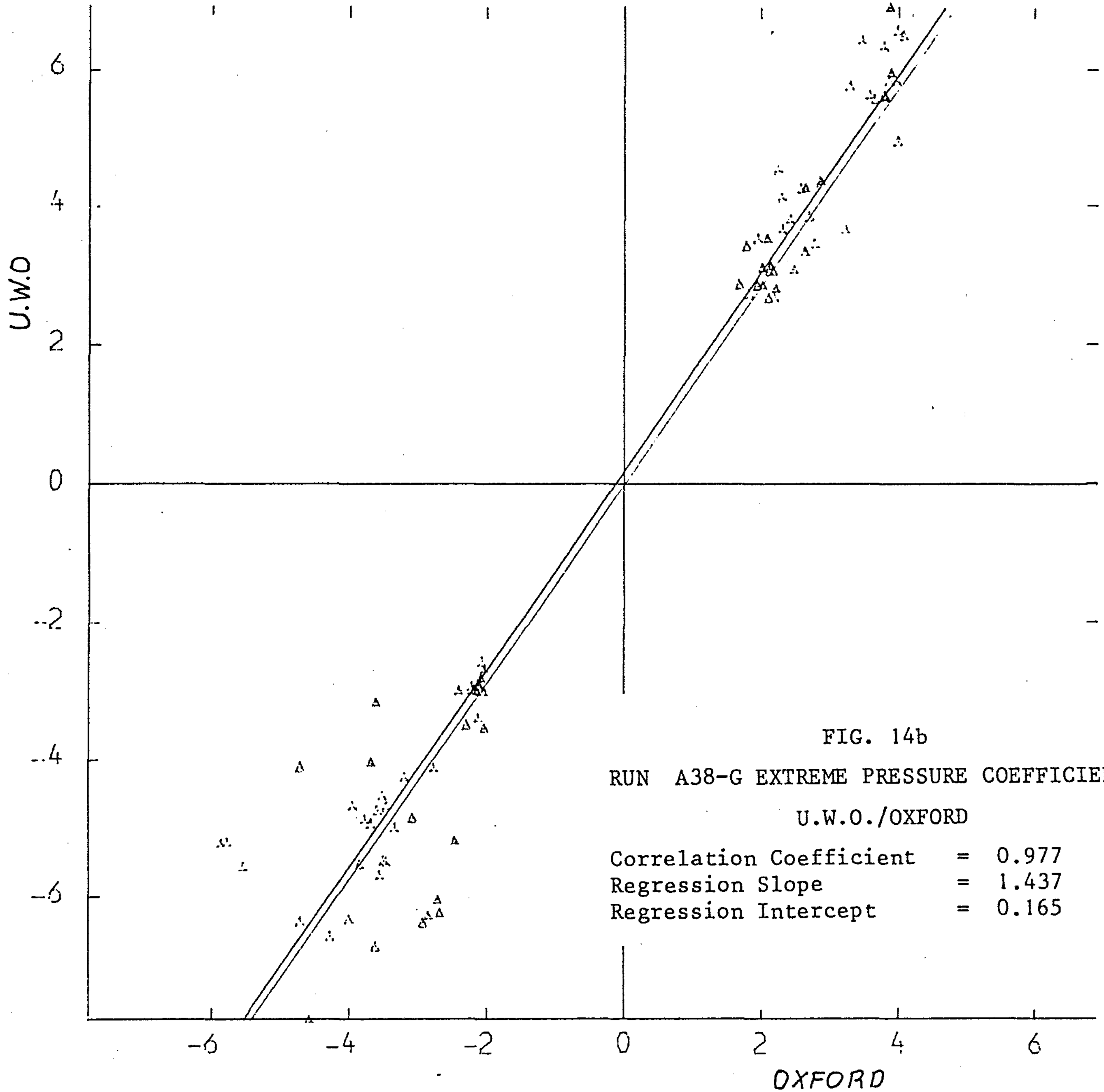

FIG. 14b

RUN A38-G EXTREME PRESSURE COEFFICIENTS

U.W.O./OXFORD

Correlation Coefficient	=	0.977
Regression Slope	=	1.437
Regression Intercept	=	0.165

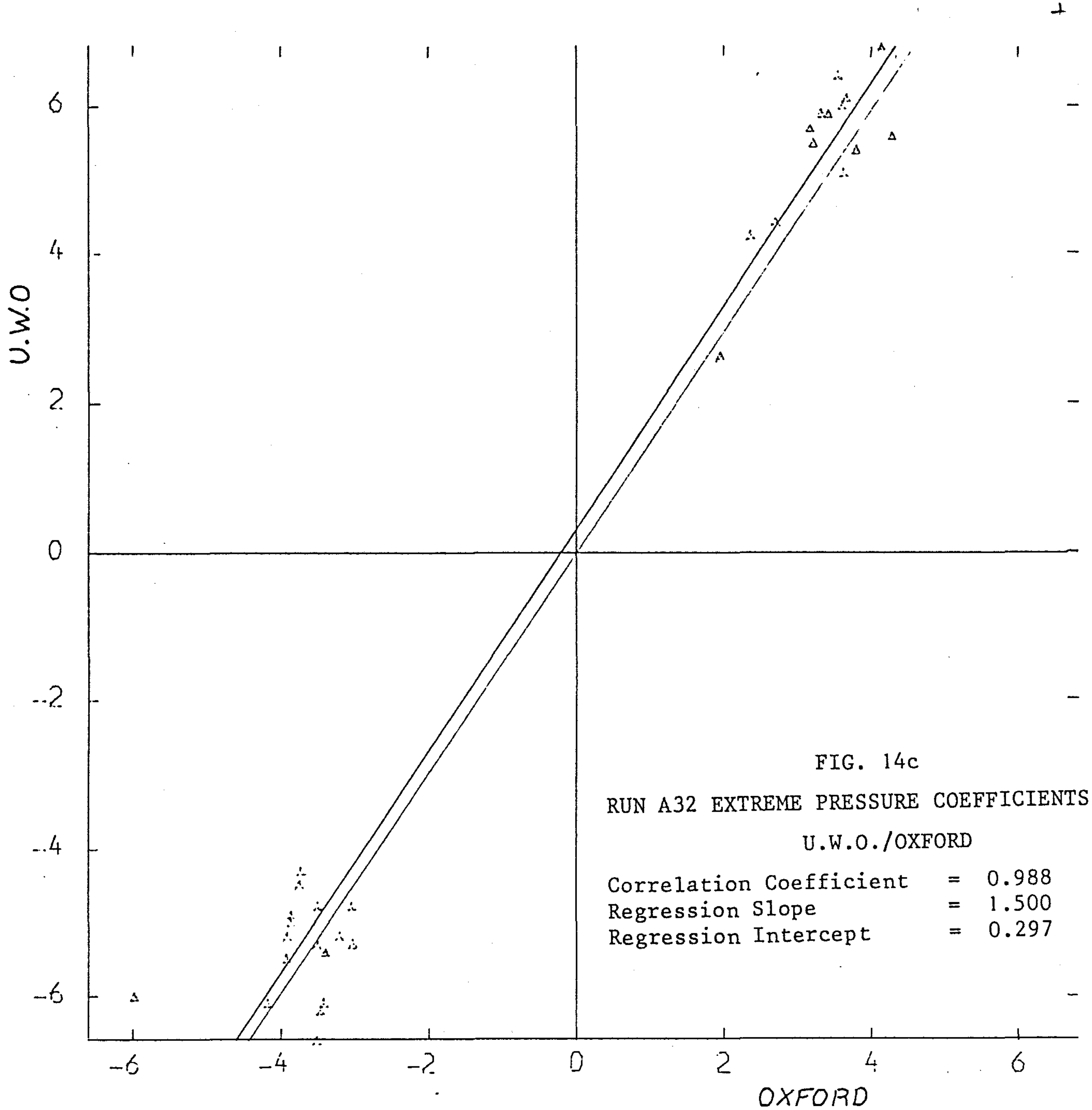

FIG. 14c

RUN A32 EXTREME PRESSURE COEFFICIENTS

U.W.O./OXFORD

Correlation Coefficient	=	0.988
Regression Slope	=	1.500
Regression Intercept	=	0.297

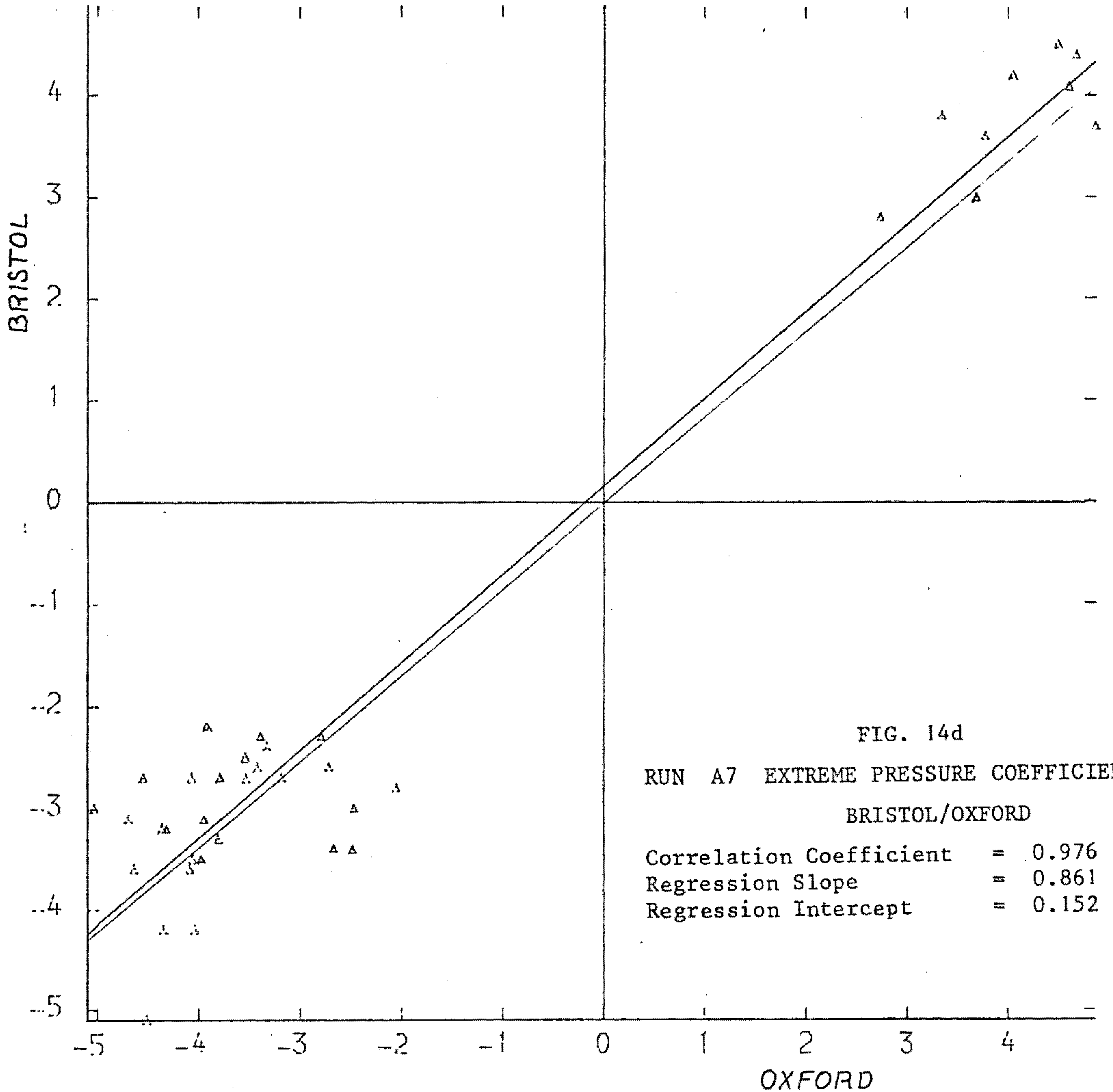

FIG. 14d

RUN A7 EXTREME PRESSURE COEFFICIENTS

BRISTOL/OXFORD

Correlation Coefficient	=	0.976
Regression Slope	=	0.861
Regression Intercept	=	0.152

chapter 4. The cases compared are listed and cross-referenced in Table 3.

Before considering the details of each comparison, it is of interest to observe from the data summary in Table 3 that the correlation coefficients are all very high. The groupings of points in Figures 13 and 14 show however that this is because both positive and negative extremes have been included, thus stretching the pattern of compared points and masking the typical scatter of the points.

The regression intercepts are all small so that the slopes can be interpreted with some confidence. These show that the Oxford data agrees very well with the full scale reduced extremes in most cases, although A38A and A7 will bear further examination.

In the A7 case, the Oxford extremes tend to be higher than both the full scale and the Bristol values, whilst the results for A38A show the Oxford extremes to be low compared with full scale.

Examining the comparison with the U.W.O. results, still on Table 3, a consistent pattern is revealed in which the U.W.O. peak factors are higher than the Oxford mode values by nearly 50 per cent.

In considering possible reasons for this discrepancy it is noted from Apperley et al (1978) that although the full-scale-equivalent averaging time used in the U.W.O. experiments was between 1 and 2 seconds, the equivalent observation time was 150 minutes. This is very much longer than the 17 minute period used in the full scale experiments by Eaton and Mayne (1974) and in the Oxford wind tunnel measurements.

The effect of observation time is examined more carefully in Part III of this report and it is shown that the discrepancy in the observation period corresponds very closely indeed with the discrepancy in the present regression line slope. Thus the results from the two wind tunnels do in fact show a very encouraging agreement.

Considering the Bristol comparison, it may be deduced with some difficulty from Bray (1977) that the equivalent full scale observation period corresponding to the Bristol extreme value measurement was about 8.8 minutes. By the argument of Part III this reduced observation period might be expected to lead to the slightly lower peak factors which are in fact indicated by the regression slope for run A7 in Table 3.

Having explained the apparent discrepancies revealed in the linear regression slopes of Figure 14, it is now possible to argue that there is not obvious pattern of disagreement between the reduced extreme pressures measured at full scale and in the various wind tunnel experiments. The scatter in the linear regression analyses includes the random effects of using single sample extremes for one variate in each case and should not be taken as an indication of poor measurements.

This same scatter means that it is really not possible to complete the argument begun in Chapter 5.1 and 5.2 concerning the nature of the windward roof-edge discrepancy because, as stated at the beginning of this section, single sample extremes cannot be compared on an individual basis.

6. CONCLUSIONS

It is perhaps a fundamental characteristic of an on-line computer experiment such as this one, that the scope and quantity of the data collected is far in excess of that actually required to support the comments which have been made. Indeed, the task of surveying and interpreting the data presented here is almost inevitably beyond the scope of any single paper.

For this reason, no apology is made for presenting the data in full. The ultimate objective of the international collaborative research effort on Aylesbury is of course the improvement of wind-loading design codes and in that context the present work is merely another small contribution to the growing collection of data which, in due course, must be compared and analysed exhaustively. In addition to its primary purpose, it is to be hoped that the data will also provide useful raw material for quite different studies as indeed it has already done in Part III of this report.

Because the present authors are not the first to complete a wind tunnel study on the Aylesbury estate, the opportunity has arisen to make some preliminary comparisons with other data. Thus, at the present time, it was felt that the most useful subsidiary objective would be an assessment of the validity of wind tunnel tests on low-rise housing.

In Part I attention was drawn to the difficulty of defining a reliable reference for mean pressure measurements. This problem is exacerbated on a model which covers a large site area because the inevitable, and so far quite inadequately documented, wind tunnel pressure gradients are sufficient to cause quite substantial errors where the reference pressure point is some distance away from the active pressure tappings.

This problem does not affect measurements of R.M.S. pressures and it is noticeable that the comparisons of these measurements show very much better general agreement, both between different wind tunnels and between tunnel and full-scale results.

Extreme pressure measurements however, if presented as simple pressure coefficients, are affected by reference pressure errors. To avoid this influence in the present comparisons, the extreme pressures have been presented as reduced coefficients or peak factors. These describe departures from the mean value scaled in terms of the R.M.S.

Of the somewhat limited and generalised comments which have been made so far, perhaps the most encouraging is the overall agreement between the independent wind tunnel experiment as indicated by linear regression analysis. The scatter is not small and it seems that to claim an accuracy better than ± 20% for any single data value would be quite unjustified on the present evidence. Nevertheless these discrepancies do seem to be random rather than systematic.

To eliminate the possibility of unsuspected correlations, of course, a detailed point-by-point survey would be required, and it must be admitted that the present examination has not been complete in this respect. Nevertheless, to the extent that wind tunnels have been shown to agree fairly well together, a base of moderate confidence is established for the examination of comparisons with full-scale measurements.

In this comparison, some non-random discrepancies have been identified. Perhaps the most significant of these is the excessive mean suction which appears to occur in all the small-scale experiments near the windward edges of roof surfaces.

It has been argued in chapter 5 that this must be a scale effect associated with modified corner-separation characteristics in the low Reynolds number experiments. However, this judgement should be accepted with some caution in view of the acknowledged difficulty (see Part 1) in establishing a reliable reference pressure for the mean pressure measurements. Thus this conclusion merely casts doubt upon the reliability of wind tunnel measurements in these sensitive corner regions and should provoke further study.

ACKNOWLEDGEMENTS

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The authors also wish to acknowledge the invaluable work of Mr. R.E. Belcher who built the models and kept the tunnel and computer running for many long and boring hours.

Reference is made in this report, not only to the full-scale experiments conducted at the Building Research Establishment by K.J. Eaton and J.R. Mayne, but also to the wind tunnel experiments of L. Apperley, D. Surr y, T. Stathopoulos and A.G. Davenport at the University of Western Ontario, of J.R. Holmes at the James Cook University of North Queensland, and of C.G. Bray with T.V. Lawson at the University of Bristol. Thanks are due to all these persons and organisations for permission to see and use data which was made freely available to us.

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APPENDIX A

EXTREME PRESSURE COEFFICIENT DATA

EXP004

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
TEST HOUSE PRESSURE TAPPINGS 3WW1-5EW2
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG, B.R.E. RECORD A7-A32
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PRESSURE TRANSDUCER A, 21 PORTS CONNECTED
PITOT 10M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
3WW1	14.3	17.0	2.00	4.913	0.66	0.078	9.7	8	1.129	0.242	-0.283	-0.054
3WW1	14.3	17.0	3.99	4.873	0.66	0.156	39.0	4	0.940	0.093	-0.211	-0.037
3WW1	14.3	16.9	15.85	4.782	0.67	0.632	79.0	8	0.643	0.062	-0.033	-0.038
3WW2	14.3	17.0	2.00	4.913	0.66	0.078	9.7	8	1.303	0.112	-0.164	-0.050
3WW2	14.3	17.0	3.99	4.873	0.66	0.156	39.0	4	1.183	0.114	-0.075	-0.049
3WW2	14.3	17.0	15.90	4.859	0.67	0.624	78.0	8	0.923	0.064	0.101	-0.035
3WW3	14.3	17.0	2.00	4.913	0.66	0.078	9.7	8	1.500	0.170	-0.098	-0.047
3WW3	14.3	17.0	3.99	4.873	0.66	0.156	39.0	4	1.204	0.131	-0.057	-0.054
3WW3	14.3	17.0	15.90	4.859	0.67	0.624	78.0	8	0.936	0.071	0.118	-0.060
3WW4	14.3	17.0	2.00	4.913	0.66	0.078	9.7	8	1.654	0.224	-0.102	-0.048
3WW4	14.3	17.0	3.99	4.873	0.66	0.156	39.0	4	1.302	0.176	-0.058	-0.041
3WW4	14.3	17.0	15.90	4.859	0.67	0.624	78.0	8	0.978	0.066	0.127	-0.048
3WW5	14.3	16.9	1.98	5.077	0.63	0.074	9.3	8	1.718	0.176	-0.111	-0.063
3WW5	14.3	17.0	3.99	4.873	0.66	0.156	39.0	4	1.329	0.127	-0.059	-0.065
3WW5	14.3	17.0	15.90	4.859	0.67	0.624	78.0	8	0.955	0.123	0.148	-0.046
3WW6	14.3	16.9	1.98	5.077	0.63	0.074	9.3	8	1.659	0.154	-0.214	-0.087
3WW6	14.3	17.0	3.98	4.994	0.65	0.152	38.0	4	1.265	0.149	-0.143	-0.055
3WW6	14.3	17.0	15.90	4.859	0.67	0.624	78.0	8	0.964	0.117	0.084	-0.044
3WW7	14.3	17.0	2.00	4.963	0.65	0.077	9.6	8	1.247	0.135	-0.537	-0.088
3WW7	14.3	17.0	3.98	4.994	0.65	0.152	38.0	4	1.043	0.168	-0.400	-0.068
3WW7	14.3	17.0	15.95	4.873	0.66	0.624	78.0	8	0.583	0.056	-0.135	-0.055
5WW1	14.3	17.0	2.00	4.963	0.65	0.077	9.6	8	1.467	0.176	-0.230	-0.072
5WW1	14.3	17.0	3.98	4.994	0.65	0.152	38.0	4	1.241	0.132	-0.128	-0.059
5WW1	14.3	17.0	15.95	4.873	0.66	0.624	78.0	8	0.832	0.100	0.046	-0.028

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
5WW2	14.3	17.0	2.00	4.963	0.65	0.077	9.6	8	1.669	0.161	-0.128	-0.068
5WW2	14.3	17.0	3.98	4.994	0.65	0.152	38.0	4	1.491	0.163	-0.019	-0.043
5WW2	14.3	17.0	15.95	4.873	0.66	0.624	78.0	8	1.007	0.129	0.136	-0.051
5WW3	14.3	17.0	2.00	4.963	0.65	0.077	9.6	8	1.708	0.156	-0.106	-0.075
5WW3	14.3	17.0	3.98	4.994	0.65	0.152	38.0	4	1.476	0.152	-0.040	-0.060
5WW3	14.3	17.0	15.95	4.873	0.66	0.624	78.0	8	1.041	0.094	0.177	-0.037
5WW4	14.3	17.0	2.00	4.963	0.65	0.077	9.6	8	1.830	0.147	-0.089	-0.061
5WW4	14.3	17.0	3.97	4.857	0.67	0.156	39.0	4	1.529	0.129	-0.012	-0.044
5WW4	14.3	16.9	15.90	4.857	0.66	0.624	78.0	8	1.016	0.065	0.185	-0.055
5WW5	14.3	16.9	1.98	5.076	0.64	0.074	9.3	8	1.834	0.210	-0.101	-0.063
5WW5	14.3	17.0	3.94	4.945	0.65	0.152	38.0	4	1.563	0.152	-0.018	-0.052
5WW5	14.3	17.0	15.98	4.945	0.65	0.616	77.0	8	1.096	0.098	0.185	-0.036
5WW6	14.3	16.9	1.98	5.076	0.64	0.074	9.3	8	1.837	0.162	-0.133	-0.060
5WW6	14.3	17.0	3.94	4.945	0.65	0.152	38.0	4	1.503	0.202	-0.064	-0.050
5WW6	14.3	17.0	15.98	4.945	0.65	0.616	77.0	8	1.042	0.098	0.171	-0.042
5WW7	14.3	16.9	1.98	5.076	0.64	0.074	9.3	8	1.477	0.232	-0.397	-0.078
5WW7	14.3	17.0	3.94	4.945	0.65	0.152	38.0	4	1.148	0.127	-0.309	-0.052
5WW7	14.3	17.0	15.98	4.945	0.65	0.616	77.0	8	0.732	0.096	-0.049	-0.049
3EW1	14.3	16.9	1.98	5.076	0.64	0.074	9.3	8	0.031	0.025	-0.949	-0.103
3EW1	14.3	17.0	3.94	4.945	0.65	0.152	38.0	4	-0.036	0.024	-0.858	-0.093
3EW1	14.3	17.0	15.98	4.945	0.65	0.616	77.0	8	-0.142	0.015	-0.634	-0.043
3EW2	14.3	16.9	1.98	5.076	0.64	0.074	9.3	8	-0.023	0.035	-1.001	-0.171
3EW2	14.3	17.0	3.98	4.991	0.65	0.152	38.0	4	-0.053	0.030	-0.875	-0.096
3EW2	14.3	17.0	15.91	4.991	0.65	0.608	76.0	8	-0.149	0.024	-0.615	-0.061
3EW3	14.3	16.9	1.99	4.982	0.65	0.076	9.5	8	-0.005	0.027	-0.922	-0.104
3EW3	14.3	17.0	3.98	4.991	0.65	0.152	38.0	4	-0.045	0.028	-0.871	-0.085
3EW3	14.3	17.0	15.91	4.991	0.65	0.608	76.0	8	-0.150	0.017	-0.611	-0.045
3EW4	14.3	16.9	1.99	4.982	0.65	0.076	9.5	8	0.004	0.033	-0.944	-0.068
3EW4	14.3	17.0	3.98	4.991	0.65	0.152	38.0	4	-0.049	0.024	-0.864	-0.110
3EW4	14.3	17.0	15.91	4.991	0.65	0.608	76.0	8	-0.147	0.019	-0.612	-0.062
3EW5	14.3	16.9	1.99	4.982	0.65	0.076	9.5	8	-0.018	0.033	-0.972	-0.077
3EW5	14.3	17.0	3.98	4.991	0.65	0.152	38.0	4	-0.048	0.033	-0.894	-0.106
3EW5	14.3	17.0	15.91	4.991	0.65	0.608	76.0	8	-0.175	0.025	-0.649	-0.043
5EW1	14.3	16.9	1.99	4.982	0.65	0.076	9.5	8	0.004	0.035	-0.918	-0.115
5EW1	14.3	17.0	3.98	4.991	0.65	0.152	38.0	4	-0.040	0.037	-0.839	-0.100
5EW1	14.3	17.0	15.91	4.991	0.65	0.608	76.0	8	-0.148	0.025	-0.594	-0.051
5EW2	14.3	16.9	1.99	4.982	0.65	0.076	9.5	8	0.008	0.032	-0.916	-0.096
5EW2	14.3	17.0	3.94	4.937	0.66	0.152	38.0	4	-0.055	0.027	-0.841	-0.109
5EW2	14.3	17.0	15.95	4.937	0.66	0.616	77.0	8	-0.168	0.031	-0.630	-0.065
5EW2	14.3	16.9	1.99	4.982	0.65	0.076	9.5	8	0.008	0.032	-0.916	-0.096
5EW2	14.3	17.0	3.94	4.937	0.66	0.152	38.0	4	-0.055	0.027	-0.841	-0.109
5EW2	14.3	17.0	15.95	4.937	0.66	0.616	77.0	8	-0.168	0.031	-0.630	-0.065

STOP --

EXP009

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/7:
PRESSURE TRANSDUCER A, 5 TEST HOUSE PRESSURE TAPPINGS
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG. B.R.E. RECORD A7-A32
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
3WW6	14.3	17.0	0.20	4.930	0.66	0.008	1.9	4	2.007	0.339	-0.510	-0.047
5WW1	14.3	17.0	0.20	4.930	0.66	0.008	1.9	4	2.140	0.252	-0.453	-0.075
5WW2	14.3	17.0	0.20	4.930	0.66	0.008	1.9	4	2.321	0.303	-0.288	-0.095
5EW1	14.3	17.0	0.20	4.930	0.66	0.008	1.9	4	0.096	0.028	-1.268	-0.141
5EW2	14.3	17.0	0.20	4.930	0.66	0.008	1.9	4	0.074	0.037	-1.062	-0.106
5EW2	14.3	17.0	0.20	4.930	0.66	0.008	1.9	4	0.074	0.037	-1.062	-0.106

STOP --

EXP010

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
21 TEST HOUSE PRESSURE TAPPINGS, PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG. B.R.E. RECORD A7-A32
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
3WW1	14.3	17.0	0.19	4.866	0.67	0.008	1.9	4	1.638	0.189	-0.496	-0.078
3WW2	14.3	17.0	0.19	4.866	0.67	0.008	1.9	4	1.848	0.202	-0.294	-0.065
3WW3	14.3	17.0	0.19	4.866	0.67	0.008	1.9	4	2.004	0.242	-0.241	-0.063
3WW4	14.3	17.0	0.19	4.866	0.67	0.008	1.9	4	2.043	0.227	-0.226	-0.055
3WW5	14.3	17.0	0.19	4.866	0.67	0.008	1.9	4	2.057	0.223	-0.290	-0.082
3WW6	14.3	17.0	0.19	4.847	0.67	0.008	1.9	4	1.961	0.249	-0.503	-0.071
3WW7	14.3	17.0	0.19	4.847	0.67	0.008	1.9	4	1.942	0.382	-0.758	-0.110
5WW1	14.3	17.0	0.19	4.847	0.67	0.008	1.9	4	2.165	0.324	-0.490	-0.088
5WW2	14.3	17.0	0.19	4.847	0.67	0.008	1.9	4	2.384	0.204	-0.319	-0.060
5WW3	14.3	17.0	0.19	4.847	0.67	0.008	1.9	4	2.444	0.251	-0.294	-0.085
5WW4	14.3	17.0	0.20	4.730	0.69	0.008	2.0	4	2.321	0.242	-0.228	-0.049
5WW5	14.3	17.0	0.20	4.730	0.69	0.008	2.0	4	2.263	0.281	-0.245	-0.076
5WW6	14.3	17.0	0.20	4.730	0.69	0.008	2.0	4	2.401	0.310	-0.340	-0.062
5WW7	14.3	17.0	0.20	4.730	0.69	0.008	2.0	4	1.893	0.201	-0.710	-0.069
3EW1	14.3	17.0	0.20	4.730	0.69	0.008	2.0	4	0.112	0.030	-1.138	-0.180
3EW2	14.3	17.0	0.19	4.814	0.67	0.008	1.9	4	0.080	0.034	-1.168	-0.118
3EW3	14.3	17.0	0.19	4.814	0.67	0.008	1.9	4	0.091	0.035	-1.083	-0.150
3EW4	14.3	17.0	0.19	4.814	0.67	0.008	1.9	4	0.139	0.056	-1.136	-0.109
3EW5	14.3	17.0	0.19	4.814	0.67	0.008	1.9	4	0.092	0.034	-1.268	-0.225
5EW1	14.3	17.0	0.19	4.814	0.67	0.008	1.9	4	0.121	0.029	-1.275	-0.172
5EW2	14.3	17.0	0.19	4.785	0.68	0.008	1.9	4	0.085	0.034	-1.201	-0.093
5EW2	14.3	17.0	0.19	4.785	0.68	0.008	1.9	4	0.085	0.034	-1.201	-0.093

STOP --

EXP011

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

TEST HOUSE HOLES SET 2, EXTREME VALUES 2,4,16 SECOND AVERAGES
TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
17 TEST HOUSE PRESSURE TAPPINGS, PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG., B.R.E. RECORD A7-A32
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVATION TIME (MINS)	FULL SCALE EQUIVALENT AVERAGING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVATION TIME (MINS)	WIND TUNNEL AVERAGING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVALS OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPERSION	MINIMA MODE	MINIMA DISPERSION
3SW1	14.3	17.0	2.00	4.953	0.65	0.077	9.6	8	0.327	0.224	-1.657	-0.251
3SW1	14.3	17.0	3.99	4.877	0.66	0.156	39.0	4	0.149	0.137	-1.558	-0.126
3SW1	14.3	17.0	15.96	4.877	0.66	0.624	78.0	8	-0.275	0.064	-1.184	-0.113
3SW2	14.3	17.0	2.00	4.953	0.65	0.077	9.6	8	0.348	0.135	-1.756	-0.165
3SW2	14.3	17.0	3.99	4.877	0.66	0.156	39.0	4	0.190	0.082	-1.528	-0.127
3SW2	14.3	17.0	15.96	4.877	0.66	0.624	78.0	8	-0.207	0.067	-1.166	-0.090
3SW3	14.3	17.0	2.00	4.953	0.65	0.077	9.6	8	0.219	0.068	-1.440	-0.153
3SW3	14.3	17.0	3.99	4.877	0.66	0.156	39.0	4	0.153	0.066	-1.215	-0.147
3SW3	14.3	17.0	15.96	4.877	0.66	0.624	78.0	8	-0.057	0.040	-0.900	-0.103
3SW4	14.3	17.0	2.00	4.953	0.65	0.077	9.6	8	0.086	0.039	-0.989	-0.124
3SW4	14.3	17.0	3.99	4.877	0.66	0.156	39.0	4	0.013	0.038	-0.840	-0.088
3SW4	14.3	17.0	15.96	4.877	0.66	0.624	78.0	8	-0.100	0.014	-0.530	-0.066
3NW1	14.3	17.0	2.00	4.953	0.65	0.077	9.6	8	-0.032	0.059	-1.483	-0.167
3NW1	14.3	17.0	3.99	4.877	0.66	0.156	39.0	4	-0.108	0.042	-1.301	-0.125
3NW1	14.3	17.0	15.96	4.877	0.66	0.624	78.0	8	-0.285	0.032	-0.963	-0.091
3NW2	14.3	16.9	1.98	4.914	0.66	0.077	9.6	8	-0.092	0.057	-1.655	-0.232
3NW2	14.3	17.0	3.92	4.914	0.66	0.152	38.0	4	-0.200	0.033	-1.531	-0.181
3NW2	14.3	16.9	15.88	4.914	0.65	0.616	77.0	8	-0.342	0.037	-1.126	-0.148
WR1A	14.3	16.9	1.78	4.914	0.66	0.077	9.6	8	0.137	0.096	-1.770	-0.175
WR1A	14.3	17.0	3.92	4.914	0.66	0.152	38.0	4	-0.119	0.056	-1.535	-0.199
WR1A	14.3	16.9	15.88	4.914	0.65	0.616	77.0	8	-0.355	0.044	-1.188	-0.083

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPER-SION	MODE	DISPER-SION
WR1E	14.3	17.0	2.00	4.813	0.67	0.079	9.9	8	0.005	0.162	-1.695	-0.176
WR1E	14.3	17.0	3.94	4.813	0.67	0.156	39.0	4	-0.132	0.098	-1.564	-0.175
WR1E	14.3	17.0	15.95	4.813	0.67	0.632	79.0	8	-0.368	0.044	-1.125	-0.085
WR3A	14.3	17.0	2.00	4.813	0.67	0.079	9.9	8	0.373	0.061	-0.752	-0.095
WR3A	14.3	17.0	3.94	4.813	0.67	0.156	39.0	4	0.224	0.044	-0.610	-0.075
WR3A	14.3	17.0	15.95	4.813	0.67	0.632	79.0	8	0.039	0.025	-0.389	-0.051
WR3B	14.3	17.0	2.00	4.813	0.67	0.079	9.9	8	0.378	0.067	-0.640	-0.092
WR3B	14.3	17.0	3.94	4.813	0.67	0.156	39.0	4	0.261	0.052	-0.551	-0.071
WR3B	14.3	17.0	15.95	4.813	0.67	0.632	79.0	8	0.044	0.026	-0.344	-0.035
WR3C	14.3	17.0	2.00	4.813	0.67	0.079	9.9	8	0.325	0.065	-0.677	-0.074
WR3C	14.3	17.0	3.94	4.813	0.67	0.156	39.0	4	0.194	0.063	-0.556	-0.056
WR3C	14.3	17.0	15.95	4.813	0.67	0.632	79.0	8	0.021	0.029	-0.366	-0.057
WR4A	14.3	17.0	2.00	4.813	0.67	0.079	9.9	8	0.086	0.034	-0.889	-0.087
WR4A	14.3	17.0	3.94	4.813	0.67	0.156	39.0	4	0.010	0.023	-0.884	-0.161
WR4A	14.3	17.0	15.95	4.813	0.67	0.632	79.0	8	-0.114	0.026	-0.535	-0.057
WR4E	14.3	17.0	2.00	4.758	0.68	0.080	10.0	8	0.018	0.032	-0.838	-0.117
WR4E	14.3	17.0	3.99	4.758	0.68	0.160	40.0	4	-0.042	0.034	-0.749	-0.085
WR4E	14.3	17.0	15.97	4.758	0.68	0.640	80.0	8	-0.153	0.019	-0.568	-0.062
ER1A	14.3	17.0	2.00	4.758	0.68	0.080	10.0	8	-0.040	0.024	-1.203	-0.156
ER1A	14.3	17.0	3.99	4.758	0.68	0.160	40.0	4	-0.110	0.041	-0.978	-0.095
ER1A	14.3	17.0	15.97	4.758	0.68	0.640	80.0	8	-0.230	0.033	-0.756	-0.082
ER1B	14.3	17.0	1.99	4.704	0.69	0.081	10.1	8	-0.066	0.049	-1.180	-0.129
ER1B	14.3	17.0	3.95	4.704	0.69	0.160	40.0	4	-0.143	0.034	-1.082	-0.113
ER1B	14.3	17.0	15.99	4.704	0.69	0.648	81.0	8	-0.261	0.028	-0.847	-0.071
ER2A	14.3	17.0	1.99	4.704	0.69	0.081	10.1	8	-0.033	0.029	-1.185	-0.210
ER2A	14.3	17.0	3.95	4.704	0.69	0.160	40.0	4	-0.116	0.039	-1.158	-0.179
ER2A	14.3	17.0	15.99	4.704	0.69	0.648	81.0	8	-0.233	0.018	-0.827	-0.069
ER3A	14.3	17.0	1.99	4.704	0.69	0.081	10.1	8	-0.016	0.035	-1.559	-0.370
ER3A	14.3	17.0	3.95	4.704	0.69	0.160	40.0	4	-0.097	0.038	-1.295	-0.237
ER3A	14.3	17.0	15.99	4.704	0.69	0.648	81.0	8	-0.233	0.020	-0.827	-0.084

STOP --

EXP012

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

TEST HOUSE HOLES SET 2, EXTREME VALUES 0.2 SEC AVERAGES
TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
17 TEST HOUSE PRESSURE TAPPINGS, PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG., B.R.E. RECORD A7-A32
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVATION TIME (MINS)	FULL SCALE EQUIVALENT AVERAGING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVATION TIME (MINS)	WIND TUNNEL AVERAGING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPERSION	MODE	DISPERSION
3SW1	14.3	17.0	0.20	4.955	0.65	0.008	1.9	4	0.748	0.216	-2.401	-0.275
3SW2	14.3	17.0	0.20	4.955	0.65	0.008	1.9	4	0.704	0.207	-2.500	-0.255
3SW3	14.3	17.0	0.20	4.955	0.65	0.008	1.9	4	0.416	0.102	-1.690	-0.207
3SW4	14.3	17.0	0.20	4.955	0.65	0.008	1.9	4	0.272	0.058	-1.397	-0.153
3NW1	14.3	17.0	0.20	4.955	0.65	0.008	1.9	4	0.158	0.060	-1.982	-0.214
3NW2	14.3	17.0	0.19	4.781	0.68	0.008	1.9	4	0.115	0.093	-2.320	-0.360
WR1A	14.3	17.0	0.19	4.781	0.68	0.008	1.9	4	0.749	0.121	-2.776	-0.289
WR1E	14.3	17.0	0.19	4.781	0.68	0.008	1.9	4	0.584	0.210	-2.614	-0.293
WR3A	14.3	17.0	0.19	4.781	0.68	0.008	1.9	4	0.723	0.095	-1.248	-0.235
WR3B	14.3	17.0	0.19	4.781	0.68	0.008	1.9	4	0.693	0.091	-1.061	-0.224
WR3C	14.3	17.0	0.19	4.829	0.67	0.008	1.9	4	0.652	0.114	-1.053	-0.149
WR4A	14.3	17.0	0.19	4.829	0.67	0.008	1.9	4	0.282	0.073	-1.238	-0.205
WR4E	14.3	17.0	0.19	4.786	0.68	0.008	1.9	4	0.138	0.061	-1.038	-0.091
ER1A	14.3	17.0	0.19	4.786	0.68	0.008	1.9	4	0.097	0.033	-1.811	-0.356
ER1B	14.3	17.0	0.19	4.786	0.68	0.008	1.9	4	0.059	0.052	-2.061	-0.286
ER2A	14.3	17.0	0.19	4.786	0.68	0.008	1.9	4	0.113	0.039	-1.493	-0.173
ER3A	14.3	17.0	0.19	4.786	0.68	0.008	1.9	4	0.052	0.038	-1.601	-0.231

STOP --

EXP013

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

ESTATE HOUSES 70,76,83, EXTREME VALUES, 2,4,16 SEC AVERAGES
TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG., B.R.E. RECORD A7
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPER-SION	MODE	DISPER-SION
70WG1	14.3	16.9	1.98	4.776	0.68	0.079	9.9	8	1.734	0.187	-0.250	-0.057
70WG1	14.3	17.0	3.91	4.776	0.68	0.156	39.0	4	1.370	0.147	-0.132	-0.052
70WG1	14.3	16.9	15.83	4.776	0.67	0.632	79.0	8	0.857	0.081	0.102	-0.037
70NR1	14.3	16.9	1.98	4.776	0.68	0.079	9.9	8	-0.314	0.054	-1.756	-0.158
70NR1	14.3	17.0	3.91	4.776	0.68	0.156	39.0	4	-0.397	0.036	-1.630	-0.122
70NR1	14.3	16.9	15.83	4.776	0.67	0.632	79.0	8	-0.535	0.038	-1.276	-0.078
70SR1A	14.3	16.9	1.98	4.776	0.68	0.079	9.9	8	-0.346	0.080	-2.693	-0.308
70SR1A	14.3	17.0	3.91	4.776	0.68	0.156	39.0	4	-0.498	0.089	-2.454	-0.118
70SR1A	14.3	16.9	15.83	4.776	0.67	0.632	79.0	8	-0.729	0.056	-1.850	-0.102
70SR1B	14.3	16.9	1.98	4.776	0.68	0.079	9.9	8	-0.114	0.023	-1.242	-0.191
70SR1B	14.3	17.0	3.91	4.776	0.68	0.156	39.0	4	-0.171	0.035	-1.083	-0.135
70SR1B	14.3	16.9	15.83	4.776	0.67	0.632	79.0	8	-0.262	0.018	-0.768	-0.092
70SR2A	14.3	16.9	1.98	4.776	0.68	0.079	9.9	8	-0.174	0.047	-1.812	-0.186
70SR2A	14.3	17.0	3.91	4.776	0.68	0.156	39.0	4	-0.264	0.052	-1.599	-0.198
70SR2A	14.3	16.9	15.83	4.776	0.67	0.632	79.0	8	-0.410	0.032	-1.210	-0.109
70SR2B	14.3	17.0	1.99	4.893	0.66	0.078	9.7	8	-0.071	0.026	-0.855	-0.084
70SR2B	14.3	17.0	3.90	4.893	0.66	0.152	38.0	4	-0.135	0.031	-0.727	-0.091
70SR2B	14.3	16.9	15.81	4.893	0.66	0.616	77.0	8	-0.210	0.016	-0.549	-0.062
70SR3A	14.3	17.0	1.99	4.893	0.66	0.078	9.7	8	-0.533	0.042	-2.590	-0.297
70SR3A	14.3	17.0	3.90	4.893	0.66	0.152	38.0	4	-0.573	0.053	-2.385	-0.317
70SR3A	14.3	16.9	15.81	4.893	0.66	0.616	77.0	8	-0.753	0.054	-1.787	-0.163

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
76WW2	14.3	16.9	1.99	4.879	0.66	0.078	9.7	8	1.110	0.204	-0.299	-0.039
76WW2	14.3	17.0	3.99	4.879	0.66	0.156	39.0	4	0.854	0.118	-0.199	-0.047
76WW2	14.3	17.0	15.97	4.879	0.66	0.624	78.0	8	0.483	0.079	-0.038	-0.029
76WR2	14.3	16.9	1.99	4.879	0.66	0.078	9.7	8	0.051	0.042	-0.744	-0.077
76WR2	14.3	17.0	3.99	4.879	0.66	0.156	39.0	4	-0.039	0.023	-0.625	-0.054
76WR2	14.3	17.0	15.97	4.879	0.66	0.624	78.0	8	-0.176	0.021	-0.470	-0.031
76ER2	14.3	16.9	1.99	4.879	0.66	0.078	9.7	8	-0.253	0.032	-1.188	-0.154
76ER2	14.3	17.0	3.99	4.879	0.66	0.156	39.0	4	-0.313	0.021	-1.063	-0.108
76ER2	14.3	17.0	15.97	4.879	0.66	0.624	78.0	8	-0.396	0.022	-0.851	-0.070
76ER1	14.3	16.9	1.99	4.881	0.66	0.078	9.7	8	-0.268	0.018	-1.234	-0.139
76ER1	14.3	17.0	3.99	4.881	0.66	0.156	39.0	4	-0.311	0.024	-1.101	-0.112
76ER1	14.3	17.0	15.98	4.881	0.66	0.624	78.0	8	-0.388	0.026	-0.873	-0.061
83SG1A	14.3	16.9	1.99	4.828	0.67	0.078	9.8	8	-0.113	0.084	-1.867	-0.081
83SG1A	14.3	17.0	3.95	4.828	0.67	0.156	39.0	4	-0.260	0.075	-1.746	-0.158
83SG1A	14.3	16.9	15.80	4.828	0.67	0.624	78.0	8	-0.534	0.038	-1.458	-0.100
83SG2	14.3	16.9	1.99	4.828	0.67	0.078	9.8	8	-0.259	0.047	-1.402	-0.098
83SG2	14.3	17.0	3.95	4.828	0.67	0.156	39.0	4	-0.353	0.035	-1.289	-0.093
83SG2	14.3	16.9	15.80	4.828	0.67	0.624	78.0	8	-0.459	0.027	-1.021	-0.054
83SG1B	14.3	17.0	2.00	4.803	0.67	0.079	9.9	8	-0.344	0.034	-1.273	-0.101
83SG1B	14.3	17.0	3.93	4.803	0.67	0.156	39.0	4	-0.396	0.036	-1.167	-0.091
83SG1B	14.3	17.0	15.92	4.803	0.67	0.632	79.0	8	-0.490	0.021	-0.949	-0.066
83NG1B	14.3	16.9	1.99	4.828	0.67	0.078	9.8	8	0.042	0.141	-1.570	-0.090
83NG1B	14.3	17.0	3.95	4.828	0.67	0.156	39.0	4	-0.167	0.109	-1.502	-0.100
83NG1B	14.3	16.9	15.80	4.828	0.67	0.624	78.0	8	-0.427	0.057	-1.156	-0.052
83NG2	14.3	16.9	1.99	4.828	0.67	0.078	9.8	8	-0.251	0.036	-1.181	-0.120
83NG2	14.3	17.0	3.95	4.828	0.67	0.156	39.0	4	-0.339	0.033	-1.114	-0.078
83NG2	14.3	16.9	15.80	4.828	0.67	0.624	78.0	8	-0.413	0.017	-0.893	-0.073
83NG1A	14.3	16.9	1.99	4.828	0.67	0.078	9.8	8	-0.244	0.027	-1.041	-0.069
83NG1A	14.3	17.0	3.95	4.828	0.67	0.156	39.0	4	-0.313	0.021	-0.986	-0.134
83NG1A	14.3	16.9	15.80	4.828	0.67	0.624	78.0	8	-0.384	0.020	-0.810	-0.047
70SR3B	14.3	17.0	1.99	4.893	0.66	0.078	9.7	8	0.004	0.055	-1.154	-0.168
70SR3B	14.3	17.0	3.90	4.893	0.66	0.152	38.0	4	-0.110	0.036	-1.072	-0.162
70SR3B	14.3	16.9	15.81	4.893	0.66	0.616	77.0	8	-0.239	0.037	-0.777	-0.088

STOP --

EXP014

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

ESTATE HOUSES 70,76,83, EXTREME VALUES, 0.2 SEC AVERAGES
TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG., B.R.E. RECORD A7
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL OBSERVATION TIME (MINS)	FULL SCALE EQUIVALENT AVERAGING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVATION TIME (MINS)	WIND TUNNEL AVERAGING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS MAXIMA MODE	MAXIMA DISPERSION	MINIMA MODE	MINIMA DISPERSION
70WG1	14.3	17.0	0.19	4.881	0.66	0.008	1.9	4	2.449	0.230	-0.524	-0.117
70NR1	14.3	17.0	0.19	4.881	0.66	0.008	1.9	4	0.057	0.101	-2.617	-0.160
70SR1A	14.3	17.0	0.19	4.881	0.66	0.008	1.9	4	0.093	0.075	-4.073	-0.310
70SR1B	14.3	17.0	0.19	4.881	0.66	0.009	1.9	4	0.178	0.065	-1.722	-0.231
70SR2A	14.3	17.0	0.19	4.881	0.66	0.008	1.9	4	0.120	0.099	-2.560	-0.214
70SR2B	14.3	17.0	0.19	4.857	0.67	0.008	1.9	4	0.191	0.082	-1.121	-0.111
70SR3A	14.3	17.0	0.19	4.857	0.67	0.008	1.9	4	-0.304	0.054	-3.763	-0.522
76WW2	14.3	17.0	0.20	4.948	0.66	0.008	1.9	4	1.652	0.187	-0.542	-0.083
76WR2	14.3	17.0	0.20	4.948	0.66	0.008	1.9	4	0.366	0.058	-1.082	-0.148
76ER2	14.3	17.0	0.20	4.948	0.66	0.008	1.9	4	-0.162	0.035	-1.664	-0.222
76ER1	14.3	17.0	0.20	4.948	0.66	0.008	1.9	4	-0.155	0.038	-1.733	-0.228
76EW1	14.3	17.0	0.20	4.948	0.66	0.006	1.9	4	-0.046	0.048	-1.076	-0.083
83SG1A	14.3	17.0	0.20	4.913	0.66	0.008	1.9	4	0.370	0.153	-3.004	-0.307
83SG2	14.3	17.0	0.20	4.950	0.65	0.008	1.9	4	0.017	0.074	-2.034	-0.221
83SG1B	14.3	17.0	0.20	4.915	0.66	0.009	1.9	4	-0.203	0.045	-1.572	-0.168
83NG1B	14.3	17.0	0.20	4.913	0.66	0.008	1.9	4	0.706	0.246	-2.521	-0.188
83NG2	14.3	17.0	0.20	4.913	0.66	0.008	1.9	4	-0.025	0.094	-1.693	-0.156
83NG1A	14.3	17.0	0.20	4.913	0.66	0.008	1.9	4	-0.180	0.032	-1.307	-0.113
70SR3B	14.3	17.0	0.19	4.857	0.67	0.008	1.9	4	0.333	0.052	-1.681	-0.251

STOP --

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

ESTATE HOUSES 33,47,58 EXTREME VALUES, 2,4,16 SEC AVERAGES
TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG., B.R.E. RECORD A7
BACK OF TRNSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
58WW1	14.3	16.9	1.98	4.919	0.66	0.077	9.6	8	0.150	0.115	-0.855	-0.080
58WW1	14.3	17.0	3.92	4.919	0.66	0.152	38.0	4	0.014	0.095	-0.747	-0.057
58WW1	14.3	16.9	15.89	4.919	0.65	0.616	77.0	8	-0.196	0.045	-0.600	-0.042
58WW2	14.3	16.9	1.98	4.919	0.66	0.077	9.6	8	0.350	0.147	-0.953	-0.089
58WW2	14.3	17.0	3.92	4.919	0.66	0.152	38.0	4	0.131	0.121	-0.767	-0.072
58WW2	14.3	16.9	15.89	4.919	0.65	0.616	77.0	8	-0.159	0.029	-0.605	-0.054
58WR1	14.3	16.9	1.98	4.919	0.66	0.077	9.6	8	0.465	0.141	-0.764	-0.074
58WR1	14.3	17.0	3.92	4.919	0.66	0.152	38.0	4	0.247	0.095	-0.640	-0.058
58WR1	14.3	16.9	15.89	4.919	0.65	0.616	77.0	8	-0.080	0.048	-0.457	-0.033
58WR2	14.3	16.9	1.98	4.919	0.66	0.077	9.6	8	0.327	0.070	-0.702	-0.044
58WR2	14.3	17.0	3.92	4.919	0.66	0.152	38.0	4	0.136	0.070	-0.567	-0.056
58WR2	14.3	16.9	15.89	4.919	0.65	0.616	77.0	8	-0.098	0.036	-0.410	-0.025
58ER1	14.3	16.9	1.98	4.919	0.66	0.077	9.6	8	-0.096	0.016	-1.115	-0.187
58ER1	14.3	17.0	3.92	4.919	0.66	0.152	38.0	4	-0.168	0.014	-0.954	-0.098
58ER1	14.3	16.9	15.89	4.919	0.65	0.616	77.0	8	-0.256	0.015	-0.706	-0.053
58ER2	14.3	17.0	1.99	4.846	0.67	0.078	9.8	8	-0.119	0.033	-1.288	-0.148
58ER2	14.3	17.0	3.96	4.846	0.67	0.156	39.0	4	-0.190	0.017	-1.084	-0.103
58ER2	14.3	16.9	15.86	4.846	0.66	0.624	78.0	8	-0.268	0.014	-0.773	-0.101
58EW1	14.3	17.0	1.99	4.846	0.67	0.078	9.8	8	-0.023	0.032	-0.607	-0.049
58EW1	14.3	17.0	3.96	4.846	0.67	0.156	39.0	4	-0.115	0.019	-0.569	-0.053
58EW1	14.3	16.9	15.86	4.846	0.66	0.624	78.0	8	-0.192	0.015	-0.442	-0.028

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS — MAXIMA — MODE	MAXIMA — DISPER-SION	MINIMA — MODE	MINIMA — DISPER-SION
47WW1	14.3	17.0	1.99	4.802	0.67	0.079	9.9	8	0.674	0.135	-0.515	-0.039
47WW1	14.3	17.0	3.93	4.802	0.67	0.156	39.0	4	0.490	0.113	-0.414	-0.046
47WW1	14.3	17.0	15.92	4.802	0.67	0.632	79.0	8	0.174	0.050	-0.246	-0.018
47WW2	14.3	17.0	1.99	4.802	0.67	0.079	9.9	8	0.981	0.195	-0.502	-0.046
47WW2	14.3	17.0	3.93	4.802	0.67	0.156	39.0	4	0.655	0.186	-0.397	-0.036
47WW2	14.3	17.0	15.92	4.802	0.67	0.632	79.0	8	0.215	0.078	-0.247	-0.017
47WR1	14.3	17.0	1.99	4.802	0.67	0.079	9.9	8	0.475	0.101	-0.965	-0.108
47WR1	14.3	17.0	3.93	4.802	0.67	0.156	39.0	4	0.280	0.077	-0.755	-0.072
47WR1	14.3	17.0	15.92	4.802	0.67	0.632	79.0	8	-0.059	0.049	-0.499	-0.035
47WR2	14.3	17.0	1.99	4.802	0.67	0.079	9.9	8	0.256	0.116	-0.774	-0.049
47WR2	14.3	17.0	3.93	4.802	0.67	0.156	39.0	4	0.126	0.089	-0.655	-0.034
47WR2	14.3	17.0	15.92	4.802	0.67	0.632	79.0	8	-0.115	0.037	-0.453	-0.032
47ER1	14.3	17.0	1.99	4.802	0.67	0.079	9.9	8	-0.228	0.035	-1.376	-0.118
47ER1	14.3	17.0	3.93	4.802	0.67	0.156	39.0	4	-0.268	0.026	-1.203	-0.094
47ER1	14.3	17.0	15.92	4.802	0.67	0.632	79.0	8	-0.399	0.022	-0.921	-0.058
47ER2	14.3	17.0	1.99	4.943	0.66	0.077	9.6	8	-0.220	0.025	-1.344	-0.153
47ER2	14.3	17.0	3.94	4.943	0.66	0.152	38.0	4	-0.293	0.037	-1.190	-0.134
47ER2	14.3	17.0	15.97	4.943	0.66	0.616	77.0	8	-0.409	0.019	-0.928	-0.042
47EW1	14.3	17.0	1.99	4.943	0.66	0.077	9.6	8	-0.095	0.030	-0.866	-0.080
47EW1	14.3	17.0	3.94	4.943	0.66	0.152	38.0	4	-0.174	0.033	-0.767	-0.048
47EW1	14.3	17.0	15.97	4.943	0.66	0.616	77.0	8	-0.292	0.017	-0.603	-0.033
33WW1	14.3	17.0	1.99	4.995	0.65	0.076	9.5	8	0.798	0.080	-0.685	-0.101
33WW1	14.3	17.0	3.98	4.995	0.65	0.152	38.0	4	0.534	0.106	-0.567	-0.055
33WW1	14.3	16.9	15.88	4.790	0.67	0.632	79.0	8	0.164	0.053	-0.367	-0.051
33WW2	14.3	17.0	1.99	4.995	0.65	0.076	9.5	8	0.905	0.121	-0.641	-0.059
33WW2	14.3	17.0	3.98	4.995	0.65	0.152	38.0	4	0.618	0.082	-0.549	-0.043
33WW2	14.3	16.9	15.88	4.790	0.67	0.632	79.0	8	0.220	0.077	-0.363	-0.032
33WR1	14.3	17.0	1.99	4.995	0.65	0.076	9.5	8	0.728	0.152	-0.883	-0.080
33WR1	14.3	17.0	3.98	4.995	0.65	0.152	38.0	4	0.425	0.098	-0.735	-0.080
33WR1	14.3	16.9	15.88	4.790	0.67	0.632	79.0	8	0.065	0.055	-0.476	-0.047
33WR2	14.3	17.0	1.99	4.995	0.65	0.076	9.5	8	0.440	0.080	-0.754	-0.081
33WR2	14.3	17.0	3.98	4.995	0.65	0.152	38.0	4	0.221	0.079	-0.678	-0.067
33WR2	14.3	16.9	15.88	4.790	0.67	0.632	79.0	8	-0.048	0.033	-0.477	-0.039
33ER1	14.3	17.0	1.99	4.995	0.65	0.076	9.5	8	-0.261	0.026	-1.411	-0.109
33ER1	14.3	17.0	3.98	4.995	0.65	0.152	38.0	4	-0.331	0.031	-1.185	-0.122
33ER1	14.3	16.9	15.88	4.790	0.67	0.632	79.0	8	-0.462	0.019	-0.942	-0.059
33ER2	14.3	16.9	1.99	4.835	0.67	0.078	9.8	8	-0.279	0.042	-1.570	-0.109
33ER2	14.3	17.0	3.93	4.929	0.66	0.152	38.0	4	-0.352	0.031	-1.340	-0.110
33ER2	14.3	17.0	15.92	4.929	0.66	0.616	77.0	8	-0.470	0.024	-0.982	-0.061
33EW1	14.3	16.9	1.99	4.835	0.67	0.078	9.8	8	-0.127	0.050	-0.888	-0.057
33EW1	14.3	17.0	3.93	4.929	0.66	0.152	38.0	4	-0.209	0.030	-0.788	-0.055
33EW1	14.3	17.0	15.92	4.929	0.66	0.616	77.0	8	-0.325	0.010	-0.633	-0.041

STOP --

EXP016

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

ESTATE HOUSES 33,47,58, EXTREME VALUES , 0.2 SEC AVERAGES
TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG., B.R.E. RECORD A7
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
58WW1	14.3	17.0	0.19	4.836	0.67	0.008	1.9	4	0.501	0.205	-1.160	-0.142
58WW2	14.3	17.0	0.19	4.836	0.67	0.008	1.9	4	0.947	0.215	-1.697	-0.185
58WR1	14.3	17.0	0.19	4.836	0.67	0.008	1.9	4	1.165	0.186	-1.135	-0.098
58WR2	14.3	17.0	0.19	4.836	0.67	0.008	1.9	4	0.842	0.134	-1.064	-0.114
58ER1	14.3	17.0	0.19	4.836	0.67	0.008	1.9	4	0.097	0.043	-1.667	-0.206
58ER2	14.3	17.0	0.19	4.880	0.66	0.008	1.9	4	0.032	0.037	-1.870	-0.324
58EW1	14.3	17.0	0.19	4.880	0.66	0.008	1.9	4	0.085	0.030	-0.829	-0.097
47WW1	14.3	17.0	0.20	4.959	0.65	0.008	1.9	4	1.098	0.245	-0.770	-0.109
47WW2	14.3	17.0	0.20	4.959	0.65	0.008	1.9	4	1.400	0.244	-0.748	-0.077
47WR1	14.3	17.0	0.20	4.959	0.65	0.008	1.9	4	0.912	0.167	-1.546	-0.217
47WR2	14.3	17.0	0.20	4.959	0.65	0.008	1.9	4	0.615	0.132	-1.037	-0.121
47ER1	14.3	17.0	0.20	4.959	0.65	0.008	1.9	4	-0.080	0.053	-2.066	-0.227
47ER2	14.3	17.0	0.20	4.905	0.66	0.008	1.9	4	-0.065	0.042	-2.060	-0.226
47EW1	14.3	17.0	0.20	4.905	0.66	0.008	1.9	4	0.051	0.066	-1.039	-0.093
33WW1	14.3	17.0	0.19	4.846	0.67	0.008	1.9	4	1.230	0.131	-1.014	-0.144
33WW2	14.3	17.0	0.19	4.846	0.67	0.008	1.9	4	1.477	0.178	-1.049	-0.146
33WR1	14.3	17.0	0.19	4.846	0.67	0.008	1.9	4	1.250	0.215	-1.286	-0.177
33WR2	14.3	17.0	0.19	4.846	0.67	0.008	1.9	4	0.880	0.149	-1.090	-0.121
33ER1	14.3	17.0	0.19	4.846	0.67	0.008	1.9	4	-0.028	0.064	-2.179	-0.240
33ER2	14.3	17.0	0.20	4.900	0.66	0.008	1.9	4	-0.090	0.053	-2.250	-0.189
33EW1	14.3	17.0	0.20	4.900	0.66	0.008	1.9	4	-0.007	0.039	-1.106	-0.134

STOP --

EXP019

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

4 TEST HOUSE HOLES, 3 OBSERVATION TIMES, 0.2 AND 2.0 SEC AVERAGES
TUNNEL WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
PRESSURE TRANSDUCER A
FULL MODEL IN WIND TUNNEL
WIND DIRECTION 265 DEG., B.R.E. RECORD A7
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANIVALVE
20 CM TUBE BETWEEN SCANIVALVE AND TAPPING
PITOT 10 M ABOVE REFERENCE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVATION TIME (MINS)	FULL SCALE EQUIVALENT AVERAGING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVATION TIME (MINS)	WIND TUNNEL AVERAGING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA		EXTREME PRESSURE COEFFICIENTS: MINIMA	
									MODE	DISPERSION	MODE	DISPERSION
5WW3 X2	14.3	34.0	0.19	4.863	1.33	0.008	1.9	4	2.543	0.253	-0.328	-0.072
5WW3 X2	14.3	34.0	2.00	4.863	1.33	0.078	9.8	8	1.803	0.129	-0.179	-0.070
5WW3 X5	14.3	85.0	0.20	4.933	3.29	0.008	1.9	4	2.940	0.266	-0.417	-0.063
5WW3 X5	14.3	85.0	2.00	4.808	3.37	0.079	9.9	8	1.953	0.199	-0.224	-0.052
5WW3 X10	14.3	170.0	0.19	4.813	6.73	0.008	1.9	4	2.928	0.251	-0.470	-0.086
5WW3 X10	14.3	170.0	2.00	4.813	6.73	0.079	19.8	4	2.270	0.156	-0.301	-0.065
3EW3 X2	14.3	34.0	0.19	4.863	1.33	0.008	1.9	4	0.118	0.041	-1.197	-0.176
3EW3 X2	14.3	34.0	2.00	4.863	1.33	0.078	9.8	8	0.043	0.036	-0.981	-0.089
3EW3 X5	14.3	85.0	0.19	4.873	3.33	0.008	1.9	4	0.161	0.039	-1.334	-0.131
3EW3 X5	14.3	84.6	1.98	4.873	3.31	0.078	9.7	8	0.060	0.032	-1.074	-0.104
3EW3 X10	14.3	170.0	0.20	4.914	6.60	0.008	1.9	4	0.192	0.034	-1.408	-0.178
3EW3 X10	14.3	170.0	1.99	4.914	6.60	0.077	19.3	4	0.105	0.028	-1.202	-0.115
WR1E X2	14.3	34.0	0.19	4.863	1.33	0.008	1.9	4	0.717	0.235	-2.613	-0.262
WR1E X2	14.3	34.0	2.00	4.863	1.33	0.078	9.8	8	0.139	0.117	-1.779	-0.141
WR1E X5	14.3	85.0	0.19	4.873	3.33	0.008	1.9	4	0.982	0.202	-3.008	-0.278
WR1E X5	14.3	84.6	1.98	4.873	3.31	0.078	9.7	8	0.261	0.112	-1.832	-0.189
WR1E X10	14.3	170.0	0.19	4.850	6.68	0.008	1.9	4	1.018	0.142	-3.168	-0.266
WR1E X10	14.3	170.0	2.00	4.861	6.67	0.078	19.6	4	0.381	0.073	-2.116	-0.162
ER1B X2	14.3	34.0	0.19	4.863	1.33	0.008	1.9	4	0.060	0.053	-2.151	-0.280
ER1B X2	14.3	34.0	2.00	4.063	1.33	0.078	9.8	8	-0.024	0.028	-1.203	-0.103
ER1B X5	14.3	85.0	0.19	4.873	3.33	0.008	1.9	4	0.138	0.053	-2.658	-0.329
ER1B X5	14.3	84.6	1.98	4.873	3.31	0.078	9.7	8	-0.003	0.027	-1.257	-0.122
ER1B X10	14.3	170.0	0.19	4.862	6.67	0.008	1.9	4	0.162	0.043	-2.690	-0.346
ER1B X10	14.3	170.0	2.00	4.862	6.67	0.078	19.6	4	0.013	0.021	-1.489	-0.090

STOP --

EXP020

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E. RECORD A38-G, WIND DIRECTION 248 DEG
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 21 TAPPINGS
ROOF PITCH 22.5 DEG, OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND BETWEEN SCANI AND TAPPING
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
3WW1	8.3	17.0	0.20	4.962	0.38	0.004	1.1	4	1.357	0.154	-0.486	-0.056
3WW1	8.3	17.0	1.99	4.962	0.38	0.044	11.1	4	1.048	0.179	-0.372	-0.049
3WW2	8.3	17.0	0.20	4.962	0.38	0.004	1.1	4	1.613	0.198	-0.305	-0.076
3WW2	8.3	17.0	1.99	4.962	0.38	0.044	11.1	4	1.366	0.178	-0.199	-0.067
3WW3	8.3	17.0	0.20	4.962	0.38	0.004	1.1	4	1.634	0.251	-0.198	-0.061
3WW3	8.3	17.0	1.99	4.962	0.38	0.044	11.1	4	1.518	0.168	-0.113	-0.051
3WW4	8.3	17.0	0.20	4.962	0.38	0.004	1.1	4	1.794	0.179	-0.181	-0.092
3WW4	8.3	17.0	1.99	4.962	0.38	0.044	11.1	4	1.621	0.240	-0.087	-0.072
3WW5	8.3	17.0	0.20	4.962	0.38	0.004	1.1	4	1.965	0.253	-0.149	-0.079
3WW5	8.3	17.0	1.99	4.962	0.38	0.044	11.1	4	1.647	0.179	-0.069	-0.044
3WW6	8.3	17.0	0.18	5.065	0.37	0.004	1.0	4	2.008	0.268	-0.229	-0.057
3WW6	8.3	17.0	2.00	5.065	0.37	0.044	10.9	4	1.756	0.167	-0.084	-0.095
3WW7	8.3	17.0	0.18	5.065	0.37	0.004	1.0	4	1.999	0.226	-0.510	-0.078
3WW7	8.3	17.0	2.00	5.065	0.37	0.044	10.9	4	1.632	0.174	-0.299	-0.113
5WW1	8.3	17.0	0.18	5.065	0.37	0.004	1.0	4	1.664	0.147	-0.554	-0.092
5WW1	8.3	17.0	2.00	5.065	0.37	0.044	10.9	4	1.139	0.176	-0.320	-0.053
5WW2	8.3	17.0	0.18	5.065	0.37	0.004	1.0	4	1.729	0.261	-0.333	-0.075
5WW2	8.3	17.0	2.00	5.065	0.37	0.044	10.9	4	1.458	0.213	-0.220	-0.060
5WW3	8.3	17.0	0.18	5.065	0.37	0.004	1.0	4	1.791	0.210	-0.140	-0.054
5WW3	8.3	17.0	2.00	5.065	0.37	0.044	10.9	4	1.617	0.198	-0.122	-0.084
5WW4	8.3	17.0	0.20	4.991	0.38	0.004	1.1	4	2.187	0.288	-0.195	-0.084
5WW4	8.3	17.0	1.98	4.991	0.38	0.044	11.0	4	1.777	0.179	-0.103	-0.066

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPER- SION	MODE	DISPER- SION
5WW5	8.3	17.0	0.20	4.991	0.38	0.004	1.1	4	2.169	0.287	-0.150	-0.053
5WW5	8.3	17.0	1.98	4.991	0.38	0.044	11.0	4	1.706	0.178	-0.080	-0.069
5WW6	8.3	17.0	0.20	4.991	0.38	0.004	1.1	4	2.326	0.233	-0.234	-0.101
5WW6	8.3	17.0	1.98	4.991	0.38	0.044	11.0	4	1.747	0.153	-0.095	-0.055
5WW7	8.3	17.0	0.20	5.020	0.37	0.004	1.1	4	1.981	0.168	-0.498	-0.159
5WW7	8.3	17.0	1.99	5.051	0.37	0.044	10.9	4	1.754	0.192	-0.235	-0.111
3EW1	8.3	17.0	0.20	5.020	0.37	0.004	1.1	4	0.038	0.046	-1.071	-0.125
3EW1	8.3	17.0	1.99	5.051	0.37	0.044	10.9	4	-0.026	0.044	-1.008	-0.134
3EW2	8.3	17.0	0.20	5.020	0.37	0.004	1.1	4	0.003	0.054	-1.126	-0.179
3EW2	8.3	17.0	1.99	5.051	0.37	0.044	10.9	4	-0.054	0.031	-1.025	-0.117
3EW3	8.3	17.0	0.20	5.020	0.37	0.004	1.1	4	0.022	0.039	-1.154	-0.080
3EW3	8.3	17.0	1.99	5.051	0.37	0.044	10.9	4	-0.073	0.049	-1.072	-0.093
3EW4	8.3	17.0	0.20	5.020	0.37	0.004	1.1	4	0.029	0.044	-1.025	-0.130
3EW4	8.3	17.0	1.99	5.051	0.37	0.044	10.9	4	-0.034	0.047	-0.963	-0.122
3EW5	8.3	17.0	0.20	5.010	0.38	0.004	1.1	4	0.090	0.052	-1.212	-0.197
3EW5	8.3	17.0	1.99	5.010	0.38	0.044	11.0	4	-0.064	0.042	-1.042	-0.135
5EW1	8.3	17.0	0.20	5.010	0.38	0.004	1.1	4	0.041	0.059	-1.074	-0.147
5EW1	8.3	17.0	1.99	5.010	0.38	0.044	11.0	4	-0.016	0.040	-1.011	-0.117
5EW2	8.3	17.0	0.20	5.010	0.38	0.004	1.1	4	0.016	0.051	-1.119	-0.142
5EW2	8.3	17.0	1.99	5.010	0.38	0.044	11.0	4	-0.079	0.034	-1.095	-0.092

STOP --

EXP021

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E. RECORD A38-A, WIND DIRECTION 233 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 21 TAPPINGS
ROOF PITCH 15 DEG, OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND BETWEEN SCANI AND TAPPING
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVALS OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
3WW1	12.4	17.0	0.19	4.867	0.58	0.006	1.6	4	1.182	0.202	-0.516	-0.068
3WW1	12.4	16.9	1.98	4.867	0.57	0.067	8.4	8	0.677	0.105	-0.347	-0.056
3WW2	12.4	17.0	0.19	4.867	0.58	0.006	1.6	4	1.431	0.188	-0.382	-0.067
3WW2	12.4	16.9	1.98	4.867	0.57	0.067	8.4	8	1.078	0.152	-0.254	-0.056
3WW3	12.4	17.0	0.19	4.867	0.58	0.006	1.6	4	1.605	0.185	-0.278	-0.065
3WW3	12.4	16.9	1.98	4.867	0.57	0.067	8.4	8	1.199	0.192	-0.196	-0.060
3WW4	12.4	17.0	0.19	4.867	0.58	0.006	1.6	4	1.758	0.210	-0.254	-0.062
3WW4	12.4	16.9	1.98	4.867	0.57	0.067	8.4	8	1.352	0.109	-0.172	-0.083
3WW5	12.4	17.0	0.19	4.867	0.58	0.006	1.6	4	1.943	0.192	-0.316	-0.182
3WW5	12.4	16.9	1.98	4.867	0.57	0.067	8.4	8	1.473	0.134	-0.124	-0.128
3WW6	12.4	17.0	0.19	4.876	0.58	0.006	1.6	4	2.061	0.302	-1.027	-0.304
3WW6	12.4	16.9	1.98	4.876	0.57	0.067	8.4	8	1.658	0.242	-0.301	-0.194
3WW7	12.4	17.0	0.19	4.876	0.58	0.006	1.6	4	2.224	0.351	-1.147	-0.200
3WW7	12.4	16.9	1.98	4.876	0.57	0.067	8.4	8	1.729	0.199	-0.646	-0.268
5WW1	12.4	17.0	0.19	4.876	0.58	0.006	1.6	4	1.435	0.156	-0.551	-0.067
5WW1	12.4	16.9	1.98	4.876	0.57	0.067	8.4	8	0.972	0.161	-0.398	-0.052
5WW2	12.4	17.0	0.19	4.876	0.58	0.006	1.6	4	1.683	0.222	-0.469	-0.077
5WW2	12.4	16.9	1.98	4.876	0.57	0.067	8.4	8	1.117	0.195	-0.316	-0.060
5WW3	12.4	17.0	0.19	4.876	0.58	0.006	1.6	4	1.667	0.238	-0.286	-0.068
5WW3	12.4	16.9	1.98	4.876	0.57	0.067	8.4	8	1.394	0.141	-0.164	-0.066
5WW4	12.4	17.0	0.19	4.980	0.56	0.006	1.6	4	2.014	0.244	-0.257	-0.086
5WW4	12.4	16.9	1.98	4.980	0.56	0.066	8.2	8	1.606	0.232	-0.170	-0.075

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	EXTREME PRESSURE COEFFICIENTS: MAXIMA DISPER-SION	EXTREME PRESSURE COEFFICIENTS: MINIMA MODE	EXTREME PRESSURE COEFFICIENTS: MINIMA DISPER-SION
5WW5	12.4	17.0	0.19	4.980	0.56	0.006	1.6	4	1.996	0.154	-0.355	-0.151
5WW5	12.4	16.9	1.98	4.980	0.56	0.066	8.2	8	1.561	0.191	-0.171	-0.071
5WW6	12.4	17.0	0.19	4.980	0.56	0.006	1.6	4	2.193	0.164	-0.772	-0.282
5WW6	12.4	16.9	1.98	4.980	0.56	0.066	8.2	8	1.799	0.192	-0.306	-0.232
5WW7	12.4	17.0	0.19	4.980	0.56	0.006	1.6	4	2.350	0.311	-1.240	-0.283
5WW7	12.4	16.9	1.98	4.980	0.56	0.066	8.2	8	1.852	0.194	-0.581	-0.185
3EW1	12.4	17.0	0.19	4.980	0.56	0.006	1.6	4	-0.076	0.045	-1.162	-0.140
3EW1	12.4	16.9	1.98	4.980	0.56	0.066	8.2	8	-0.148	0.037	-1.033	-0.058
3EW2	12.4	17.0	0.19	4.968	0.57	0.006	1.6	4	-0.121	0.049	-1.240	-0.109
3EW2	12.4	16.9	1.99	5.134	0.54	0.064	8.0	8	-0.175	0.029	-1.110	-0.133
3EW3	12.4	17.0	0.19	4.968	0.57	0.006	1.6	4	-0.099	0.044	-1.306	-0.114
3EW3	12.4	16.9	1.99	5.134	0.54	0.064	8.0	8	-0.161	0.029	-1.162	-0.054
3EW4	12.4	17.0	0.19	4.968	0.57	0.006	1.6	4	-0.036	0.038	-1.269	-0.120
3EW4	12.4	16.9	1.99	5.134	0.54	0.064	8.0	8	-0.150	0.044	-1.040	-0.111
3EW5	12.4	17.0	0.19	4.968	0.57	0.006	1.6	4	0.010	0.034	-1.232	-0.148
3EW5	12.4	16.9	1.99	5.134	0.54	0.064	8.0	8	-0.095	0.028	-1.000	-0.084
5EW1	12.4	17.0	0.19	4.968	0.57	0.006	1.6	4	-0.094	0.052	-1.215	-0.123
5EW1	12.4	16.9	1.99	5.134	0.54	0.064	8.0	8	-0.161	0.042	-1.066	-0.092
5EW2	12.4	17.0	0.19	4.937	0.57	0.006	1.6	4	-0.099	0.033	-1.344	-0.111
5EW2	12.4	16.9	1.98	4.937	0.57	0.066	8.3	8	-0.164	0.036	-1.127	-0.089

STOP --

EXP022

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L REPORT 1213/77
B.R.E. RECORD A38-B, WIND DIRECTION 233 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF WIND TUNNEL,21 TAPPINGS
ROOF PITCH 10 DEG, OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND BETWEEN SCANI AND TAPPING
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
3WW1	11.3	17.0	0.20	4.988	0.51	0.006	1.5	4	1.164	0.155	-0.541	-0.051
3WW1	11.3	16.9	1.99	4.988	0.51	0.060	7.5	8	0.704	0.097	-0.357	-0.039
3WW2	11.3	17.0	0.20	4.988	0.51	0.006	1.5	4	1.479	0.184	-0.354	-0.069
3WW2	11.3	16.9	1.99	4.988	0.51	0.060	7.5	8	1.083	0.158	-0.259	-0.050
3WW3	11.3	17.0	0.20	4.988	0.51	0.006	1.5	4	1.584	0.169	-0.333	-0.078
3WW3	11.3	16.9	1.99	4.988	0.51	0.060	7.5	8	1.320	0.133	-0.174	-0.068
3WW4	11.3	17.0	0.20	4.988	0.51	0.006	1.5	4	1.845	0.199	-0.300	-0.092
3WW4	11.3	16.9	1.99	4.988	0.51	0.060	7.5	8	1.378	0.128	-0.125	-0.058
3WW5	11.3	17.0	0.20	4.988	0.51	0.006	1.5	4	1.950	0.220	-0.303	-0.145
3WW5	11.3	16.9	1.99	4.988	0.51	0.060	7.5	8	1.515	0.141	-0.114	-0.096
3WW6	11.3	17.0	0.20	4.983	0.51	0.006	1.5	4	1.946	0.183	-0.838	-0.365
3WW6	11.3	16.9	1.98	4.983	0.51	0.060	7.5	8	1.641	0.154	-0.331	-0.170
3WW7	11.3	17.0	0.20	4.983	0.51	0.006	1.5	4	1.950	0.263	-1.099	-0.275
3WW7	11.3	16.9	1.98	4.983	0.51	0.060	7.5	8	1.740	0.193	-0.524	-0.179
5WW1	11.3	17.0	0.20	4.983	0.51	0.006	1.5	4	1.330	0.152	-0.540	-0.069
5WW1	11.3	16.9	1.98	4.983	0.51	0.060	7.5	8	0.846	0.164	-0.370	-0.055
5WW2	11.3	17.0	0.20	4.983	0.51	0.006	1.5	4	1.703	0.278	-0.432	-0.062
5WW2	11.3	16.9	1.98	4.983	0.51	0.060	7.5	8	1.193	0.168	-0.345	-0.055
5WW3	11.3	17.0	0.20	4.983	0.51	0.006	1.5	4	1.765	0.343	-0.217	-0.056
5WW3	11.3	16.9	1.98	4.983	0.51	0.060	7.5	8	1.389	0.137	-0.199	-0.053
5WW4	11.3	17.0	0.19	4.855	0.53	0.006	1.5	4	1.866	0.233	-0.309	-0.094
5WW4	11.3	16.9	1.98	4.855	0.52	0.062	7.7	8	1.593	0.191	-0.171	-0.103

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPER- SION	MODE	DISPER- SION
5WW5	11.3	17.0	0.19	4.855	0.53	0.006	1.5	4	2.074	0.265	-0.338	-0.107
5WW5	11.3	16.9	1.98	4.855	0.52	0.062	7.7	8	1.627	0.161	-0.149	-0.032
5WW6	11.3	17.0	0.19	4.855	0.53	0.006	1.5	4	2.140	0.246	-0.898	-0.307
5WW6	11.3	16.9	1.98	4.855	0.52	0.062	7.7	8	1.669	0.185	-0.362	-0.228
5WW7	11.3	17.0	0.19	4.855	0.53	0.006	1.5	4	2.364	0.250	-1.167	-0.127
5WW7	11.3	16.9	1.98	4.855	0.52	0.062	7.7	8	1.805	0.166	-0.684	-0.257
3EW1	11.3	17.0	0.20	4.965	0.52	0.006	1.5	4	-0.072	0.044	-1.161	-0.141
3EW1	11.3	16.9	1.98	4.965	0.51	0.060	7.5	8	-0.126	0.040	-1.008	-0.121
3EW2	11.3	17.0	0.20	4.965	0.52	0.006	1.5	4	-0.096	0.044	-1.283	-0.159
3EW2	11.3	16.9	1.98	4.965	0.51	0.060	7.5	8	-0.154	0.027	-1.086	-0.100
3EW3	11.3	17.0	0.20	4.965	0.52	0.006	1.5	4	-0.091	0.032	-1.208	-0.107
3EW3	11.3	16.9	1.98	4.965	0.51	0.060	7.5	8	-0.156	0.035	-1.129	-0.093
3EW4	11.3	17.0	0.20	4.965	0.52	0.006	1.5	4	-0.037	0.026	-1.265	-0.081
3EW4	11.3	16.9	1.98	4.965	0.51	0.060	7.5	8	-0.122	0.031	-1.040	-0.117
3EW5	11.3	17.0	0.20	4.965	0.52	0.006	1.5	4	0.027	0.051	-1.222	-0.099
3EW5	11.3	16.9	1.98	4.965	0.51	0.060	7.5	8	-0.086	0.040	-0.938	-0.106
5EW1	11.3	17.0	0.20	4.959	0.52	0.006	1.5	4	-0.094	0.040	-1.222	-0.099
5EW1	11.3	16.9	1.97	4.959	0.51	0.060	7.5	8	-0.134	0.030	-1.049	-0.111
5EW2	11.3	17.0	0.20	4.959	0.52	0.006	1.5	4	-0.108	0.046	-1.261	-0.085
5EW2	11.3	16.9	1.97	4.959	0.51	0.060	7.5	8	-0.128	0.046	-1.157	-0.098

STOP --

EXP023

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E.RECORD A38-C, WIND DIRECTION 233 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 21 TAPPINGS
ROOF PITCH 5 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND BETWEEN SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPER-SION	MODE	DISPER-SION
3WW1	11.1	17.0	0.19	5.018	0.50	0.006	1.4	4	1.093	0.181	-0.596	-0.081
3WW1	11.1	16.9	1.98	5.018	0.50	0.058	7.3	8	0.756	0.115	-0.389	-0.050
3WW2	11.1	17.0	0.19	5.018	0.50	0.006	1.4	4	1.441	0.197	-0.375	-0.052
3WW2	11.1	16.9	1.98	5.018	0.50	0.058	7.3	8	1.139	0.181	-0.252	-0.062
3WW3	11.1	17.0	0.19	5.018	0.50	0.006	1.4	4	1.566	0.185	-0.297	-0.074
3WW3	11.1	16.9	1.98	5.018	0.50	0.058	7.3	8	1.298	0.134	-0.155	-0.067
3WW4	11.1	17.0	0.19	5.018	0.50	0.006	1.4	4	1.781	0.169	-0.263	-0.059
3WW4	11.1	16.9	1.98	5.018	0.50	0.058	7.3	8	1.410	0.179	-0.164	-0.060
3WW5	11.1	17.0	0.19	5.018	0.50	0.006	1.4	4	1.911	0.218	-0.273	-0.118
3WW5	11.1	16.9	1.98	5.018	0.50	0.058	7.3	8	1.500	0.150	-0.095	-0.070
3WW6	11.1	17.0	0.19	5.009	0.50	0.006	1.4	4	2.121	0.255	-0.871	-0.406
3WW6	11.1	16.9	1.98	5.009	0.50	0.058	7.3	8	1.611	0.167	-0.307	-0.251
3WW7	11.1	17.0	0.19	5.009	0.50	0.006	1.4	4	2.100	0.295	-1.151	-0.229
3WW7	11.1	16.9	1.98	5.009	0.50	0.058	7.3	8	1.667	0.243	-0.585	-0.213
5WW1	11.1	17.0	0.19	5.009	0.50	0.006	1.4	4	1.373	0.224	-0.548	-0.081
5WW1	11.1	16.9	1.98	5.009	0.50	0.058	7.3	8	0.872	0.127	-0.344	-0.046
5WW2	11.1	17.0	0.19	5.009	0.50	0.006	1.4	4	1.610	0.254	-0.473	-0.064
5WW2	11.1	16.9	1.98	5.009	0.50	0.058	7.3	8	1.141	0.189	-0.286	-0.036
5WW3	11.1	17.0	0.19	5.009	0.50	0.006	1.4	4	1.630	0.186	-0.266	-0.084
5WW3	11.1	16.9	1.98	5.009	0.50	0.058	7.3	8	1.340	0.131	-0.191	-0.090
5WW4	11.1	17.0	0.19	4.936	0.51	0.006	1.4	4	2.013	0.197	-0.237	-0.079
5WW4	11.1	16.9	1.97	4.936	0.51	0.059	7.4	8	1.541	0.248	-0.108	-0.044

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
5WW5	11.1	17.0	0.19	4.936	0.51	0.006	1.4	4	2.016	0.157	-0.353	-0.157
5WW5	11.1	16.9	1.97	4.936	0.51	0.059	7.4	8	1.627	0.190	-0.124	-0.078
5WW6	11.1	17.0	0.19	4.936	0.51	0.006	1.4	4	2.141	0.236	-0.804	-0.423
5WW6	11.1	16.9	1.97	4.936	0.51	0.059	7.4	8	1.725	0.198	-0.256	-0.187
5WW7	11.1	17.0	0.19	4.936	0.51	0.006	1.4	4	2.207	0.222	-1.141	-0.294
5WW7	11.1	16.9	1.97	4.936	0.51	0.059	7.4	8	1.759	0.199	-0.634	-0.212
3EW1	11.1	17.0	0.19	4.997	0.50	0.006	1.4	4	-0.027	0.053	-1.200	-0.124
3EW1	11.1	17.0	2.00	4.997	0.50	0.059	7.4	8	-0.112	0.037	-1.053	-0.155
3EW2	11.1	17.0	0.19	4.997	0.50	0.006	1.4	4	-0.092	0.037	-1.302	-0.138
3EW2	11.1	17.0	2.00	4.997	0.50	0.059	7.4	8	-0.136	0.042	-1.128	-0.133
3EW3	11.1	17.0	0.19	4.997	0.50	0.006	1.4	4	-0.068	0.052	-1.241	-0.118
3EW3	11.1	17.0	2.00	4.997	0.50	0.059	7.4	8	-0.148	0.042	-1.027	-0.067
3EW4	11.1	17.0	0.19	4.997	0.50	0.006	1.4	4	-0.038	0.029	-1.185	-0.142
3EW4	11.1	17.0	2.00	4.997	0.50	0.059	7.4	8	-0.117	0.043	-0.971	-0.077
3EW5	11.1	17.0	0.19	4.997	0.50	0.006	1.4	4	0.030	0.040	-1.119	-0.118
3EW5	11.1	17.0	2.00	4.997	0.50	0.059	7.4	8	-0.067	0.037	-0.940	-0.139
5EW1	11.1	17.0	0.19	4.969	0.51	0.006	1.4	4	-0.048	0.048	-1.232	-0.108
5EW1	11.1	17.0	1.99	4.969	0.51	0.059	7.4	8	-0.120	0.029	-1.033	-0.087
5EW2	11.1	17.0	0.19	4.969	0.51	0.006	1.4	4	-0.088	0.046	-1.250	-0.099
5EW2	11.1	17.0	1.99	4.969	0.51	0.059	7.4	8	-0.146	0.045	-1.074	-0.114

STOP --

MANHOLE

PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

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PRESSURE!	FULL	! FULL	! FULL	! WIND	! WIND	!
	SPEED ()	TIME (M	AVERAG-	VELOCITY! ()	TIME ()	(!
3						
	1					
2	!		!	!	!	!

UP ------------------------------

OVER ----------

MODE

AVERAGED!

****

.21

****

EXP025

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E. RECORD A38-B, WIND DIRECTION 233 DEG.
NEW TEST HOUSE,MOUNTED NEAR CENTRE OF TURNTABLE, 11 TAPPINGS
ROOF PITCH 10 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND BETWEEN SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
5EW3	11.3	17.0	0.20	5.021	0.51	0.006	1.5	4	-0.051	0.034	-1.261	-0.142
5EW3	11.3	17.0	2.00	5.021	0.51	0.060	7.5	8	-0.138	0.041	-1.099	-0.104
5EW4	11.3	17.0	0.20	5.021	0.51	0.006	1.5	4	-0.023	0.025	-1.247	-0.175
5EW4	11.3	17.0	2.00	5.021	0.51	0.060	7.5	8	-0.084	0.044	-0.953	-0.085
5EW5	11.3	17.0	0.20	5.021	0.51	0.006	1.5	4	-0.020	0.055	-1.488	-0.169
5EW5	11.3	17.0	2.00	5.021	0.51	0.060	7.5	8	-0.081	0.032	-1.035	-0.098
3SW1	11.3	17.0	0.20	5.021	0.51	0.006	1.5	4	1.984	0.261	-2.066	-0.230
3SW1	11.3	17.0	2.00	5.021	0.51	0.060	7.5	8	1.544	0.209	-1.280	-0.187
3SW2	11.3	17.0	0.20	5.021	0.51	0.006	1.5	4	1.738	0.196	-2.092	-0.332
3SW2	11.3	17.0	2.00	5.021	0.51	0.060	7.5	8	1.380	0.174	-1.307	-0.203
3SW3	11.3	17.0	0.20	5.002	0.51	0.006	1.5	4	1.243	0.184	-1.140	-0.217
3SW3	11.3	16.9	1.98	4.979	0.51	0.060	7.5	8	0.992	0.144	-0.702	-0.218
3SW4	11.3	17.0	0.20	5.002	0.51	0.006	1.5	4	0.680	0.138	-0.737	-0.067
3SW4	11.3	16.9	1.98	4.979	0.51	0.060	7.5	8	0.415	0.096	-0.548	-0.053
5SW1	11.3	17.0	0.20	5.002	0.51	0.006	1.5	4	1.909	0.267	-2.139	-0.272
5SW1	11.3	16.9	1.98	4.979	0.51	0.060	7.5	8	1.519	0.228	-1.526	-0.261
5SW2	11.3	17.0	0.20	5.002	0.51	0.006	1.5	4	1.768	0.261	-2.195	-0.391
5SW2	11.3	16.9	1.98	4.979	0.51	0.060	7.5	8	1.442	0.215	-1.547	-0.230
3NW1	11.3	17.0	0.20	5.002	0.51	0.006	1.5	4	0.006	0.030	-1.220	-0.150
3NW1	11.3	16.9	1.98	4.979	0.51	0.060	7.5	8	-0.079	0.033	-0.932	-0.124
3NW2	11.3	17.0	0.20	4.985	0.51	0.006	1.5	4	0.025	0.033	-1.091	-0.128
3NW2	11.3	16.9	1.99	4.985	0.51	0.060	7.5	8	-0.044	0.040	-0.910	-0.121

STOP --

ESP026

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E. RECORD A38-A, WIND DIRECTION 233 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 11 TAPPINGS
ROOF PITCH 15 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND BETWEEN SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
5EW3	12.4	17.0	0.19	4.978	0.56	0.006	1.6	4	-0.061	0.032	-1.577	-0.180
5EW3	12.4	17.0	2.00	4.978	0.56	0.066	8.3	8	-0.159	0.034	-1.141	-0.089
5EW4	12.4	17.0	0.19	4.978	0.56	0.006	1.6	4	-0.036	0.036	-1.520	-0.281
5EW4	12.4	17.0	2.00	4.978	0.56	0.066	8.3	8	-0.102	0.044	-1.106	-0.110
5EW5	12.4	17.0	0.19	4.978	0.56	0.006	1.6	4	0.018	0.047	-1.556	-0.198
5EW5	12.4	17.0	2.00	4.978	0.56	0.066	8.3	8	-0.115	0.029	-1.091	-0.115
3SW1	12.4	17.0	0.19	4.978	0.56	0.006	1.6	4	1.937	0.200	-1.946	-0.285
3SW1	12.4	17.0	2.00	4.978	0.56	0.066	8.3	8	1.500	0.205	-1.308	-0.213
3SW2	12.4	17.0	0.19	4.978	0.56	0.006	1.6	4	1.796	0.282	-1.842	-0.252
3SW2	12.4	17.0	2.00	4.978	0.56	0.066	8.3	8	1.385	0.225	-1.326	-0.164
3SW3	12.4	17.0	0.19	4.988	0.56	0.006	1.6	4	1.306	0.202	-1.055	-0.259
3SW3	12.4	16.9	1.98	4.988	0.56	0.066	8.2	8	0.990	0.118	-0.668	-0.157
3SW4	12.4	17.0	0.19	4.988	0.56	0.006	1.6	4	0.691	0.159	-0.760	-0.112
3SW4	12.4	16.9	1.98	4.988	0.56	0.066	8.2	8	0.408	0.066	-0.572	-0.057
5SW1	12.4	17.0	0.19	4.988	0.56	0.006	1.6	4	1.925	0.289	-2.109	-0.280
5SW1	12.4	16.9	1.98	4.988	0.56	0.066	8.2	8	1.580	0.281	-1.616	-0.195
5SW2	12.4	17.0	0.19	4.988	0.56	0.006	1.6	4	1.759	0.250	-2.195	-0.452
5SW2	12.4	16.9	1.98	4.988	0.56	0.066	8.2	8	1.437	0.203	-1.586	-0.241
3NW1	12.4	17.0	0.19	4.988	0.56	0.006	1.6	4	-0.000	0.035	-1.180	-0.175
3NW1	12.4	16.9	1.98	4.988	0.56	0.066	8.2	8	-0.067	0.027	-1.002	-0.123
3NW2	12.4	17.0	0.20	5.072	0.55	0.006	1.6	4	0.029	0.032	-1.118	-0.139
3NW2	12.4	17.0	1.99	5.072	0.55	0.065	8.1	8	-0.070	0.038	-0.979	-0.167

STOP --

EXP027

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E. RECORD A38-G, WIND DIRECTION 248 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 11 TAPPINGS
ROOF PITCH 22.5 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBE BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
5EW3	8.3	17.0	0.19	4.893	0.38	0.004	1.1	4	-0.048	0.042	-1.509	-0.162
5EW3	8.3	17.0	2.00	4.893	0.38	0.045	11.3	4	-0.152	0.038	-1.229	-0.113
5EW4	8.3	17.0	0.19	4.893	0.38	0.004	1.1	4	-0.022	0.050	-1.528	-0.298
5EW4	8.3	17.0	2.00	4.893	0.38	0.045	11.3	4	-0.142	0.042	-1.150	-0.132
5EW5	8.3	17.0	0.19	4.893	0.38	0.004	1.1	4	0.042	0.037	-1.388	-0.125
5EW5	8.3	17.0	2.00	4.893	0.38	0.045	11.3	4	-0.108	0.035	-1.052	-0.130
3SW1	8.3	17.0	0.19	4.893	0.38	0.004	1.1	4	1.852	0.291	-1.768	-0.325
3SW1	8.3	17.0	2.00	4.893	0.38	0.045	11.3	4	1.481	0.156	-1.272	-0.118
3SW2	8.3	17.0	0.19	4.893	0.38	0.004	1.1	4	1.543	0.173	-1.927	-0.266
3SW2	8.3	17.0	2.00	4.893	0.38	0.045	11.3	4	1.400	0.259	-1.341	-0.330
3SW3	8.3	17.0	0.20	5.017	0.37	0.004	1.1	4	0.771	0.127	-1.703	-0.181
3SW3	8.3	17.0	1.99	5.017	0.37	0.044	11.0	4	0.574	0.091	-1.262	-0.185
3SW4	8.3	17.0	0.20	5.017	0.37	0.004	1.1	4	0.392	0.079	-1.039	-0.191
3SW4	8.3	17.0	1.99	5.017	0.37	0.044	11.0	4	0.200	0.076	-0.757	-0.133
5SW1	8.3	17.0	0.20	5.017	0.37	0.004	1.1	4	1.400	0.288	-2.513	-0.442
5SW1	8.3	17.0	1.99	5.017	0.37	0.044	11.0	4	1.183	0.191	-1.985	-0.395
5SW2	8.3	17.0	0.20	5.017	0.37	0.004	1.1	4	1.174	0.162	-2.503	-0.295
5SW2	8.3	17.0	1.99	5.017	0.37	0.044	11.0	4	1.019	0.185	-1.974	-0.206
3NW1	8.3	17.0	0.20	5.017	0.37	0.004	1.1	4	0.000	0.049	-1.682	-0.230
3NW1	8.3	17.0	1.99	5.017	0.37	0.044	11.0	4	-0.089	0.038	-1.390	-0.225
3NW2	8.3	17.0	0.18	5.052	0.37	0.004	1.0	4	0.017	0.039	-1.798	-0.387
3NW2	8.3	17.0	1.99	5.052	0.37	0.044	10.9	4	-0.067	0.043	-1.338	-0.156

STOP --

EXP028

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E.RECORD A38-G, WIND DIRECTION 248 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 20 TAPPINGS
ROOF PITCH 22.5 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBE BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
WR1A	8.3	17.0	0.20	4.980	0.38	0.004	1.1	4	0.782	0.178	-2.080	-0.323
WR1A	8.3	17.0	2.00	4.980	0.38	0.044	11.1	4	0.363	0.099	-1.441	-0.105
WR1B	8.3	17.0	0.20	4.980	0.38	0.004	1.1	4	0.718	0.184	-2.261	-0.194
WR1B	8.3	17.0	2.00	4.980	0.38	0.044	11.1	4	0.378	0.135	-1.508	-0.162
WR1C	8.3	17.0	0.20	4.980	0.38	0.004	1.1	4	0.716	0.189	-2.282	-0.283
WR1C	8.3	17.0	2.00	4.980	0.38	0.044	11.1	4	0.224	0.086	-1.560	-0.172
WR1E	8.3	17.0	0.20	4.980	0.38	0.004	1.1	4	0.777	0.229	-1.817	-0.236
WR1E	8.3	17.0	2.00	4.980	0.38	0.044	11.1	4	0.527	0.132	-1.223	-0.130
WR1F	8.3	17.0	0.20	4.980	0.38	0.004	1.1	4	0.485	0.196	-2.248	-0.326
WR1F	8.3	17.0	2.00	4.980	0.38	0.044	11.1	4	0.028	0.055	-1.432	-0.184
WR2C	8.3	17.0	0.20	4.992	0.38	0.004	1.1	4	0.827	0.129	-1.538	-0.243
WR2C	8.3	17.0	1.99	5.001	0.38	0.044	11.0	4	0.615	0.112	-1.012	-0.131
WR2E	8.3	17.0	0.20	4.992	0.38	0.004	1.1	4	0.816	0.098	-1.309	-0.234
WR2E	8.3	17.0	1.99	5.001	0.38	0.044	11.0	4	0.571	0.092	-0.926	-0.116
WR3A	8.3	17.0	0.20	4.992	0.38	0.004	1.1	4	0.725	0.116	-1.627	-0.311
WR3A	8.3	17.0	1.99	5.001	0.38	0.044	11.0	4	0.523	0.077	-1.144	-0.205
WR3B	8.3	17.0	0.20	4.992	0.38	0.004	1.1	4	0.661	0.139	-0.827	-0.152
WR3B	8.3	17.0	1.99	5.001	0.38	0.044	11.0	4	0.446	0.086	-0.538	-0.072
WR3C	8.3	17.0	0.20	4.992	0.38	0.004	1.1	4	0.616	0.101	-0.815	-0.149
WR3C	8.3	17.0	1.99	5.001	0.38	0.044	11.0	4	0.415	0.079	-0.572	-0.083

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	EXTREME PRESSURE COEFFICIENTS: MAXIMA DISPER-SION	EXTREME PRESSURE COEFFICIENTS: MINIMA MODE	EXTREME PRESSURE COEFFICIENTS: MINIMA DISPER-SION
WR3D	8.3	17.0	0.18	5.094	0.37	0.004	1.0	4	0.569	0.109	-1.013	-0.167
WR3D	8.3	17.0	1.99	5.094	0.37	0.043	10.8	4	0.326	0.058	-0.609	-0.066
WR3E	8.3	17.0	0.18	5.094	0.37	0.004	1.0	4	0.563	0.119	-0.915	-0.088
WR3E	8.3	17.0	1.99	5.094	0.37	0.043	10.8	4	0.275	0.042	-0.603	-0.066
WR4C	8.3	17.0	0.18	5.094	0.37	0.004	1.0	4	0.673	0.116	-0.781	-0.107
WR4C	8.3	17.0	1.99	5.094	0.37	0.043	10.8	4	0.358	0.077	-0.575	-0.085
ER1A	8.3	17.0	0.18	5.094	0.37	0.004	1.0	4	0.068	0.056	-1.897	-0.259
ER1A	8.3	17.0	1.99	5.094	0.37	0.043	10.8	4	-0.099	0.034	-1.305	-0.173
ER1B	8.3	17.0	0.18	5.094	0.37	0.004	1.0	4	0.005	0.057	-1.684	-0.179
ER1B	8.3	17.0	1.99	5.094	0.37	0.043	10.8	4	-0.135	0.020	-1.199	-0.145
ER2A	8.3	17.0	0.19	5.147	0.37	0.004	1.0	4	0.059	0.055	-1.764	-0.199
ER2A	8.3	17.0	1.99	5.147	0.37	0.043	10.7	4	-0.100	0.035	-1.376	-0.209
ER2B	8.3	17.0	0.19	5.147	0.37	0.004	1.0	4	-0.001	0.037	-1.693	-0.273
ER2B	8.3	17.0	1.99	5.147	0.37	0.043	10.7	4	-0.094	0.024	-1.458	-0.192
ER3A	8.3	17.0	0.19	5.147	0.37	0.004	1.0	4	0.002	0.055	-2.049	-0.393
ER3A	8.3	17.0	1.99	5.147	0.37	0.043	10.7	4	-0.103	0.027	-1.730	-0.350
ER3B	8.3	17.0	0.19	5.147	0.37	0.004	1.0	4	-0.015	0.044	-1.674	-0.245
ER3B	8.3	17.0	1.99	5.147	0.37	0.043	10.7	4	-0.111	0.035	-1.231	-0.148

STOP --

EXP029

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E.RECORD A38-A, WIND DIRECTION 233 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 20 TAPPINGS
ROOF PITCH 15 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBE BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	EXTREME PRESSURE COEFFICIENTS: MAXIMA DISPER- SION	EXTREME PRESSURE COEFFICIENTS: MINIMA MODE	EXTREME PRESSURE COEFFICIENTS: MINIMA DISPER- SION
WR1A	12.4	17.0	0.20	5.110	0.55	0.006	1.6	4	0.504	0.178	-2.908	-0.292
WR1A	12.4	16.9	1.98	5.110	0.55	0.064	8.0	8	-0.067	0.100	-2.053	-0.198
WR1B	12.4	17.0	0.20	5.110	0.55	0.006	1.6	4	0.361	0.148	-2.993	-0.407
WR1B	12.4	16.9	1.98	5.110	0.55	0.064	8.0	8	-0.083	0.092	-2.145	-0.215
WR1C	12.4	17.0	0.20	5.110	0.55	0.006	1.6	4	0.227	0.149	-2.572	-0.173
WR1C	12.4	16.9	1.98	5.110	0.55	0.064	8.0	8	-0.186	0.094	-2.023	-0.255
WR1E	12.4	17.0	0.20	5.110	0.55	0.006	1.6	4	0.396	0.132	-2.385	-0.182
WR1E	12.4	16.9	1.98	5.110	0.55	0.064	8.0	8	0.141	0.061	-1.826	-0.198
WR1F	12.4	17.0	0.20	5.110	0.55	0.006	1.6	4	0.035	0.098	-2.629	-0.265
WR1F	12.4	16.9	1.98	5.110	0.55	0.064	8.0	8	-0.234	0.048	-1.780	-0.243
WR2C	12.4	17.0	0.20	5.054	0.56	0.006	1.6	4	0.487	0.125	-2.264	-0.260
WR2C	12.4	16.9	1.98	5.054	0.55	0.065	8.1	8	0.125	0.082	-1.527	-0.190
WR2E	12.4	17.0	0.20	5.054	0.56	0.006	1.6	4	0.380	0.078	-1.914	-0.260
WR2E	12.4	16.9	1.98	5.054	0.55	0.065	8.1	8	0.166	0.072	-1.480	-0.206
WR3A	12.4	17.0	0.20	5.054	0.56	0.006	1.6	4	0.424	0.088	-3.083	-0.430
WR3A	12.4	16.9	1.98	5.054	0.55	0.065	8.1	8	0.149	0.068	-2.169	-0.218
WR3B	12.4	17.0	0.20	5.054	0.56	0.006	1.6	4	0.368	0.060	-1.434	-0.332
WR3B	12.4	16.9	1.98	5.054	0.55	0.065	8.1	8	0.083	0.038	-0.963	-0.322
WR3C	12.4	17.0	0.20	5.054	0.56	0.006	1.6	4	0.193	0.066	-1.277	-0.202
WR3C	12.4	16.9	1.98	5.054	0.55	0.065	8.1	8	0.041	0.046	-0.881	-0.146

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPER-SION	MODE	DISPER-SION
WR3D	12.4	17.0	0.20	4.824	0.58	0.007	1.7	4	0.158	0.089	-1.602	-0.251
WR3D	12.4	16.9	1.98	4.824	0.58	0.068	8.5	8	-0.031	0.033	-1.003	-0.098
WR3E	12.4	17.0	0.20	4.824	0.58	0.007	1.7	4	0.196	0.094	-1.396	-0.267
WR3E	12.4	16.9	1.98	4.824	0.58	0.068	8.5	8	0.013	0.040	-0.884	-0.073
WR4C	12.4	17.0	0.20	4.824	0.58	0.007	1.7	4	0.240	0.076	-1.204	-0.140
WR4C	12.4	16.9	1.98	4.824	0.58	0.068	8.5	8	0.010	0.038	-0.783	-0.065
ER1A	12.4	17.0	0.20	4.824	0.58	0.007	1.7	4	-0.076	0.060	-2.359	-0.243
ER1A	12.4	16.9	1.98	4.824	0.58	0.068	8.5	8	-0.244	0.037	-1.577	-0.142
ER1B	12.4	17.0	0.20	4.824	0.58	0.007	1.7	4	0.040	0.070	-1.544	-0.170
ER1B	12.4	16.9	1.98	4.824	0.58	0.068	8.5	8	-0.116	0.035	-1.087	-0.095
ER2A	12.4	17.0	0.19	5.028	0.56	0.006	1.6	4	-0.070	0.093	-2.606	-0.317
ER2A	12.4	17.0	2.00	5.028	0.56	0.066	8.2	8	-0.277	0.050	-2.015	-0.214
ER2B	12.4	17.0	0.19	5.028	0.56	0.006	1.6	4	0.060	0.051	-2.163	-0.173
ER2B	12.4	17.0	2.00	5.028	0.56	0.066	8.2	8	-0.160	0.028	-1.475	-0.122
ER3A	12.4	17.0	0.19	5.028	0.56	0.006	1.6	4	-0.090	0.065	-4.241	-0.471
ER3A	12.4	17.0	2.00	5.028	0.56	0.066	8.2	8	-0.332	0.063	-3.234	-0.256
ER3B	12.4	17.0	0.19	5.028	0.56	0.006	1.6	4	-0.199	0.059	-2.276	-0.170
ER3B	12.4	17.0	2.00	5.028	0.56	0.066	8.2	8	-0.307	0.055	-1.742	-0.192

STOP --

EXP030

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E. RECORD A38-B, WIND DIRECTION 233 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 20 TAPPINGS
ROOF PITCH 10 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBE BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
WR1A	11.3	17.0	0.20	4.926	0.52	0.006	1.5	4	0.245	0.135	-4.330	-0.548
WR1A	11.3	17.0	1.99	4.926	0.52	0.061	7.6	8	-0.229	0.124	-3.478	-0.317
WR1B	11.3	17.0	0.20	4.926	0.52	0.006	1.5	4	0.058	0.150	-3.360	-0.311
WR1B	11.3	17.0	1.99	4.926	0.52	0.061	7.6	8	-0.326	0.099	-2.888	-0.225
WR1C	11.3	17.0	0.20	4.926	0.52	0.006	1.5	4	-0.006	0.162	-2.734	-0.260
WR1C	11.3	17.0	1.99	4.926	0.52	0.061	7.6	8	-0.365	0.062	-2.260	-0.196
WR1E	11.3	17.0	0.20	4.926	0.52	0.006	1.5	4	0.187	0.104	-2.930	-0.223
WR1E	11.3	17.0	1.99	4.926	0.52	0.061	7.6	8	-0.093	0.112	-2.130	-0.224
WR1F	11.3	17.0	0.20	4.926	0.52	0.006	1.5	4	0.011	0.064	-2.593	-0.327
WR1F	11.3	17.0	1.99	4.926	0.52	0.061	7.6	8	-0.221	0.037	-1.865	-0.232
WR2C	11.3	17.0	0.19	5.030	0.51	0.006	1.4	4	0.317	0.090	-2.851	-0.304
WR2C	11.3	16.9	1.98	5.030	0.51	0.059	7.4	8	-0.040	0.075	-2.336	-0.314
WR2E	11.3	17.0	0.19	5.030	0.51	0.006	1.4	4	0.221	0.079	-2.312	-0.356
WR2E	11.3	16.9	1.98	5.030	0.51	0.059	7.4	8	-0.015	0.061	-1.739	-0.291
WR3A	11.3	17.0	0.19	5.030	0.51	0.006	1.4	4	0.276	0.131	-3.413	-0.420
WR3A	11.3	16.9	1.98	5.030	0.51	0.059	7.4	8	0.031	0.053	-2.404	-0.217
WR3B	11.3	17.0	0.19	5.030	0.51	0.006	1.4	4	0.205	0.077	-1.596	-0.251
WR3B	11.3	16.9	1.98	5.030	0.51	0.059	7.4	8	0.042	0.039	-1.204	-0.256
WR3C	11.3	17.0	0.19	5.030	0.51	0.006	1.4	4	0.164	0.053	-1.873	-0.276
WR3C	11.3	16.9	1.98	5.030	0.51	0.059	7.4	8	0.014	0.040	-1.395	-0.191

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
WR3D	11.3	17.0	0.19	5.044	0.51	0.006	1.4	4	0.084	0.071	-2.095	-0.269
WR3D	11.3	16.9	1.98	5.044	0.50	0.059	7.4	8	-0.069	0.055	-1.549	-0.178
WR3E	11.3	17.0	0.19	5.044	0.51	0.006	1.4	4	0.127	0.079	-1.775	-0.246
WR3E	11.3	16.9	1.98	5.044	0.50	0.059	7.4	8	-0.083	0.031	-1.136	-0.117
WR4C	11.3	17.0	0.19	5.044	0.51	0.006	1.4	4	0.260	0.049	-1.276	-0.209
WR4C	11.3	16.9	1.98	5.044	0.50	0.059	7.4	8	0.056	0.044	-0.902	-0.146
ER1A	11.3	17.0	0.19	5.044	0.51	0.006	1.4	4	-0.014	0.054	-2.471	-0.252
ER1A	11.3	16.9	1.98	5.044	0.50	0.059	7.4	8	-0.213	0.057	-1.614	-0.194
ER1B	11.3	17.0	0.19	5.044	0.51	0.006	1.4	4	0.029	0.040	-1.165	-0.116
ER1B	11.3	16.9	1.98	5.044	0.50	0.059	7.4	8	-0.089	0.036	-0.905	-0.061
ER2A	11.3	17.0	0.20	4.958	0.52	0.006	1.5	4	-0.049	0.086	-2.477	-0.274
ER2A	11.3	16.9	1.97	4.958	0.51	0.060	7.5	8	-0.264	0.041	-1.925	-0.182
ER2B	11.3	17.0	0.20	4.958	0.52	0.006	1.5	4	0.077	0.059	-1.687	-0.151
ER2B	11.3	16.9	1.97	4.958	0.51	0.060	7.5	8	-0.076	0.030	-1.318	-0.121
ER3A	11.3	17.0	0.20	4.958	0.52	0.006	1.5	4	-0.222	0.049	-3.715	-0.366
ER3A	11.3	16.9	1.97	4.958	0.51	0.060	7.5	8	-0.342	0.060	-3.146	-0.235
ER3B	11.3	17.0	0.20	4.958	0.52	0.006	1.5	4	-0.140	0.048	-2.417	-0.300
ER3B	11.3	16.9	1.97	4.958	0.51	0.060	7.5	8	-0.302	0.041	-2.016	-0.151

STOP --

EXP031

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
B.R.E. RECORD A38-C, WIND DIRECTION 233 DEG.
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 20 TAPPINGS
ROOF PITCH 5 DEG., OVERHANG FITTED
PART MODEL ONLY IN WIND TUNNEL
20 CM TUBE BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
PITOT 10 M ABOVE ANEMOMETER SITE

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
WR1A	11.1	17.0	0.19	5.071	0.50	0.006	1.4	4	-0.148	0.073	-5.192	-0.747
WR1A	11.1	17.0	1.99	5.179	0.49	0.057	7.1	8	-0.367	0.080	-4.329	-0.429
WR1B	11.1	17.0	0.20	4.887	0.51	0.006	1.5	4	-0.110	0.272	-4.465	-0.508
WR1B	11.1	16.9	1.98	4.887	0.51	0.060	7.5	8	-0.551	0.099	-3.799	-0.357
WR1C	11.1	17.0	0.20	4.887	0.51	0.006	1.5	4	-0.187	0.101	-3.288	-0.418
WR1C	11.1	16.9	1.98	4.887	0.51	0.060	7.5	8	-0.443	0.083	-2.840	-0.280
WR1E	11.1	17.0	0.20	4.887	0.51	0.006	1.5	4	0.125	0.102	-2.705	-0.239
WR1E	11.1	16.9	1.98	4.887	0.51	0.060	7.5	8	-0.164	0.073	-2.251	-0.183
WR1F	11.1	17.0	0.20	4.887	0.51	0.006	1.5	4	0.046	0.077	-2.670	-0.312
WR1F	11.1	16.9	1.98	4.887	0.51	0.060	7.5	8	-0.198	0.030	-1.811	-0.205
WR2C	11.1	17.0	0.19	4.944	0.51	0.006	1.4	4	0.252	0.081	-3.397	-0.333
WR2C	11.1	16.9	1.98	4.944	0.51	0.059	7.4	8	-0.133	0.038	-2.806	-0.280
WR2E	11.1	17.0	0.19	4.944	0.51	0.006	1.4	4	0.146	0.108	-2.591	-0.216
WR2E	11.1	16.9	1.98	4.944	0.51	0.059	7.4	8	-0.093	0.060	-1.882	-0.188
WR3A	11.1	17.0	0.19	4.944	0.51	0.006	1.4	4	0.157	0.081	-3.727	-0.415
WR3A	11.1	16.9	1.98	4.944	0.51	0.059	7.4	8	-0.042	0.056	-2.697	-0.350
WR3B	11.1	17.0	0.19	4.944	0.51	0.006	1.4	4	0.155	0.040	-2.054	-0.325
WR3B	11.1	16.9	1.98	4.944	0.51	0.059	7.4	8	-0.015	0.053	-1.423	-0.223
WR3C	11.1	17.0	0.19	4.944	0.51	0.006	1.4	4	0.205	0.057	-2.598	-0.407
WR3C	11.1	16.9	1.98	4.944	0.51	0.059	7.4	8	0.021	0.039	-1.823	-0.253

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS			
									MAXIMA		MINIMA	
									MODE	DISPER- SION	MODE	DISPER- SION
WR3D	11.1	17.0	0.19	5.059	0.50	0.006	1.4	4	0.075	0.069	-2.459	-0.236
WR3D	11.1	17.0	2.00	5.059	0.50	0.058	7.3	8	-0.119	0.045	-1.811	-0.206
WR3E	11.1	17.0	0.19	5.059	0.50	0.006	1.4	4	0.077	0.055	-1.847	-0.217
WR3E	11.1	17.0	2.00	5.059	0.50	0.058	7.3	8	-0.141	0.032	-1.319	-0.159
WR4C	11.1	17.0	0.19	5.059	0.50	0.006	1.4	4	0.299	0.077	-1.524	-0.312
WR4C	11.1	17.0	2.00	5.059	0.50	0.058	7.3	8	0.099	0.042	-0.953	-0.187
ER1A	11.1	17.0	0.19	5.059	0.50	0.006	1.4	4	0.017	0.070	-2.484	-0.269
ER1A	11.1	17.0	2.00	5.059	0.50	0.058	7.3	8	-0.175	0.043	-1.527	-0.179
ER1B	11.1	17.0	0.19	5.059	0.50	0.006	1.4	4	0.015	0.039	-1.152	-0.136
ER1B	11.1	17.0	2.00	5.059	0.50	0.058	7.3	8	-0.071	0.031	-0.924	-0.102
ER2A	11.1	17.0	0.20	4.909	0.51	0.006	1.5	4	-0.070	0.071	-2.510	-0.347
ER2A	11.1	17.0	1.99	4.909	0.51	0.060	7.5	8	-0.229	0.034	-1.823	-0.218
ER2B	11.1	17.0	0.20	4.909	0.51	0.006	1.5	4	0.055	0.031	-1.572	-0.249
ER2B	11.1	17.0	1.99	4.909	0.51	0.060	7.5	8	-0.062	0.030	-1.157	-0.187
ER3A	11.1	17.0	0.20	4.909	0.51	0.006	1.5	4	-0.096	0.079	-3.267	-0.315
ER3A	11.1	17.0	1.99	4.909	0.51	0.060	7.5	8	-0.326	0.058	-2.625	-0.342
ER3B	11.1	17.0	0.20	4.909	0.51	0.006	1.5	4	0.096	0.074	-1.879	-0.227
ER3B	11.1	17.0	1.99	4.909	0.51	0.060	7.5	8	-0.130	0.036	-1.319	-0.162

STOP --

EXP032

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

LOW TURBULENCE WIND SIMULATION: MVP962
OLD TEST HOUSE, MOUNTED NEAR FRONT OF TURNTABLE, 16 TAPPINGS
B.R.E. RECORD A32, WIND DIRECTION 265 DEG.
FULL MODEL IN WIND TUNNEL
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
PITOT 10 M ABOVE ANEMOMETER SITE

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
3WW3	14.3	17.0	0.19	5.081	0.64	0.007	1.8	4	1.810	0.236	-0.096	-0.059
3WW3	14.3	16.9	1.98	5.081	0.63	0.074	9.3	8	1.341	0.096	0.002	-0.036
3WW4	14.3	17.0	0.19	5.081	0.64	0.007	1.8	4	1.797	0.307	-0.130	-0.045
3WW4	14.3	16.9	1.98	5.081	0.63	0.074	9.3	8	1.281	0.084	0.006	-0.047
5WW3	14.3	17.0	0.19	5.081	0.64	0.007	1.8	4	2.006	0.158	-0.110	-0.046
5WW3	14.3	16.9	1.98	5.081	0.63	0.074	9.3	8	1.576	0.108	0.015	-0.032
5WW7	14.3	17.0	0.19	5.081	0.64	0.007	1.8	4	1.668	0.166	-0.557	-0.075
5WW7	14.3	16.9	1.98	5.081	0.63	0.074	9.3	8	1.209	0.127	-0.205	-0.056
3EW1	14.3	17.0	0.19	5.081	0.64	0.007	1.8	4	0.007	0.030	-1.092	-0.104
3EW1	14.3	16.9	1.98	5.081	0.63	0.074	9.3	8	-0.056	0.027	-0.833	-0.084
3EW3	14.3	17.0	0.20	4.920	0.66	0.008	1.9	4	0.000	0.026	-0.905	-0.076
3EW3	14.3	16.9	1.98	4.920	0.66	0.077	9.6	8	-0.070	0.019	-0.742	-0.086
5EW1	14.3	17.0	0.20	4.920	0.66	0.008	1.9	4	0.037	0.041	-1.052	-0.122
5EW1	14.3	16.9	1.98	4.920	0.66	0.077	9.6	8	-0.062	0.020	-0.837	-0.102
3SW2	14.3	17.0	0.20	4.920	0.66	0.008	1.9	4	0.333	0.100	-2.304	-0.108
3SW2	14.3	16.9	1.98	4.920	0.66	0.077	9.6	8	0.124	0.153	-1.593	-0.128
3SW4	14.3	17.0	0.20	4.920	0.66	0.008	1.9	4	0.196	0.042	-1.129	-0.149
3SW4	14.3	16.9	1.98	4.920	0.66	0.077	9.6	8	-0.003	0.029	-0.804	-0.081
3NW2	14.3	17.0	0.20	4.920	0.66	0.008	1.9	4	-0.032	0.039	-2.296	-0.292
3NW2	14.3	16.9	1.98	4.920	0.66	0.077	9.6	8	-0.209	0.037	-1.554	-0.184
WR1A	14.3	17.0	0.20	4.961	0.65	0.008	1.9	4	0.513	0.085	-2.272	-0.210
WR1A	14.3	16.9	1.99	5.039	0.64	0.075	9.4	8	-0.007	0.076	-1.661	-0.101
WR1E	14.3	17.0	0.20	4.961	0.65	0.008	1.9	4	0.436	0.204	-2.198	-0.184
WR1E	14.3	16.9	1.99	5.039	0.64	0.075	9.4	8	-0.052	0.060	-1.438	-0.120
WR3A	14.3	17.0	0.20	4.961	0.65	0.008	1.9	4	0.467	0.048	-0.781	-0.100
WR3A	14.3	16.9	1.99	5.039	0.64	0.075	9.4	8	0.261	0.044	-0.548	-0.049
ER1B	14.3	17.0	0.20	4.961	0.65	0.008	1.9	4	-0.037	0.030	-1.743	-0.289
ER1B	14.3	16.9	1.99	5.039	0.64	0.075	9.4	8	-0.138	0.026	-0.985	-0.098
ER2A	14.3	17.0	0.20	4.961	0.65	0.008	1.9	4	0.027	0.034	-1.159	-0.118
ER2A	14.3	16.9	1.99	5.039	0.64	0.075	9.4	8	-0.113	0.025	-0.906	-0.077
ER3A	14.3	17.0	0.19	5.071	0.64	0.007	1.8	4	-0.021	0.031	-1.071	-0.100
ER3A	14.3	16.9	1.98	5.071	0.64	0.074	9.3	8	-0.095	0.028	-0.951	-0.145

EXP033

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

HIGH TURBULENCE WIND SIMULATION: MVP965
OLD TEST HOUSE, MOUNTED NEAR FRONT OF TURNTABLE, 16 TAPPINGS
B.R.E. RECORD A32, WIND DIRECTION 265 DEG.
FULL MODEL IN WIND TUNNEL
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPING
PITOT 10 M ABOVE ANEMOMETER SITE

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
3WW3	14.3	17.0	0.19	5.156	0.63	0.007	1.8	4	2.185	0.371	-0.408	-0.106
3WW3	14.3	17.0	1.99	5.156	0.63	0.074	9.2	8	1.642	0.179	-0.292	-0.069
3WW4	14.3	17.0	0.19	5.156	0.63	0.007	1.8	4	2.131	0.325	-0.495	-0.119
3WW4	14.3	17.0	1.99	5.156	0.63	0.074	9.2	8	1.621	0.244	-0.304	-0.097
5WW3	14.3	17.0	0.19	5.050	0.64	0.007	1.8	4	2.597	0.322	-0.433	-0.083
5WW3	14.3	17.0	1.99	5.050	0.64	0.075	9.4	8	1.910	0.181	-0.314	-0.083
5WW7	14.3	17.0	0.19	5.050	0.64	0.007	1.8	4	2.380	0.275	-0.948	-0.192
5WW7	14.3	17.0	1.99	5.050	0.64	0.075	9.4	8	1.603	0.181	-0.500	-0.089
3EW1	14.3	17.0	0.19	5.050	0.64	0.007	1.8	4	0.104	0.042	-1.424	-0.174
3EW1	14.3	17.0	1.99	5.050	0.64	0.075	9.4	8	0.050	0.049	-1.175	-0.138
3EW3	14.3	17.0	0.19	5.050	0.64	0.007	1.8	4	0.116	0.054	-1.287	-0.174
3EW3	14.3	17.0	1.99	5.050	0.64	0.075	9.4	8	0.017	0.031	-1.183	-0.152
5EW1	14.3	17.0	0.19	5.050	0.64	0.007	1.8	4	0.136	0.050	-1.418	-0.148
5EW1	14.3	17.0	1.99	5.050	0.64	0.075	9.4	8	0.018	0.034	-1.262	-0.148
3SW2	14.3	17.0	0.19	5.330	0.61	0.007	1.7	4	0.999	0.149	-2.923	-0.267
3SW2	14.3	17.0	1.99	5.330	0.61	0.071	8.9	8	0.677	0.175	-2.118	-0.227
3SW4	14.3	17.0	0.19	5.330	0.61	0.007	1.7	4	0.282	0.061	-1.633	-0.186
3SW4	14.3	17.0	1.99	5.330	0.61	0.071	8.9	8	0.125	0.051	-1.180	-0.192
3NW2	14.3	17.0	0.19	5.330	0.61	0.007	1.7	4	0.251	0.178	-2.828	-0.472
3NW2	14.3	17.0	1.99	5.330	0.61	0.071	8.9	8	0.082	0.140	-2.141	-0.230
WR1A	14.3	17.0	0.19	5.330	0.61	0.007	1.7	4	0.866	0.215	-3.197	-0.518
WR1A	14.3	17.0	1.99	5.330	0.61	0.071	8.9	8	0.194	0.122	-2.397	-0.369
WR1E	14.3	17.0	0.19	5.330	0.61	0.007	1.7	4	0.792	0.249	-2.917	-0.340
WR1E	14.3	17.0	1.99	5.330	0.61	0.071	8.9	8	0.162	0.213	-2.101	-0.226
WR3A	14.3	17.0	0.19	5.158	0.63	0.007	1.8	4	0.804	0.121	-1.718	-0.325
WR3A	14.3	17.0	1.99	5.158	0.63	0.074	9.2	8	0.421	0.083	-1.055	-0.308
ER1B	14.3	17.0	0.19	5.158	0.63	0.007	1.8	4	0.067	0.054	-2.318	-0.404
ER1B	14.3	17.0	1.99	5.158	0.63	0.074	9.2	8	-0.050	0.033	-1.351	-0.103
ER2A	14.3	17.0	0.19	5.158	0.63	0.007	1.8	4	0.119	0.039	-1.891	-0.219
ER2A	14.3	17.0	1.99	5.158	0.63	0.074	9.2	8	-0.030	0.041	-1.522	-0.270
ER3A	14.3	17.0	0.19	5.158	0.63	0.007	1.8	4	0.054	0.036	-2.408	-0.579
ER3A	14.3	17.0	1.99	5.158	0.63	0.074	9.2	8	-0.028	0.044	-1.971	-0.411

EXP034

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 21 TAPPINGS
B.R.E. RECORD A38- , WIND DIRECTION 233 DEG.
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
PITOT 10 M ABOVE ANEMOMETER SITE
OVERHANG FITTED FOR THIS RUN
ROOF PITCH 22.5 DEG.

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
3WW1	11.6	17.0	0.20	5.037	0.52	0.006	1.5	4	1.131	0.134	-0.486	-0.076
3WW1	11.6	16.9	1.98	5.037	0.52	0.061	7.6	8	0.706	0.107	-0.364	-0.057
3WW2	11.6	17.0	0.20	5.037	0.52	0.006	1.5	4	1.453	0.185	-0.330	-0.067
3WW2	11.6	16.9	1.98	5.037	0.52	0.061	7.6	8	1.128	0.155	-0.241	-0.054
3WW3	11.6	17.0	0.20	5.037	0.52	0.006	1.5	4	1.542	0.206	-0.240	-0.051
3WW3	11.6	16.9	1.98	5.037	0.52	0.061	7.6	8	1.274	0.155	-0.164	-0.059
3WW4	11.6	17.0	0.20	5.037	0.52	0.006	1.5	4	1.700	0.252	-0.263	-0.077
3WW4	11.6	16.9	1.98	5.037	0.52	0.061	7.6	8	1.378	0.180	-0.123	-0.078
3WW5	11.6	17.0	0.20	5.037	0.52	0.006	1.5	4	1.906	0.109	-0.249	-0.156
3WW5	11.6	16.9	1.98	5.037	0.52	0.061	7.6	8	1.435	0.200	-0.086	-0.079
3WW6	11.6	17.0	0.19	4.981	0.53	0.006	1.5	4	1.924	0.285	-0.770	-0.374
3WW6	11.6	16.9	1.98	4.981	0.52	0.062	7.7	8	1.656	0.130	-0.302	-0.253
3WW7	11.6	17.0	0.19	5.192	0.51	0.006	1.4	4	2.045	0.238	-0.982	-0.246
3WW7	11.6	17.0	1.99	5.192	0.51	0.059	7.4	8	1.615	0.158	-0.617	-0.216
5WW1	11.6	17.0	0.19	5.192	0.51	0.006	1.4	4	1.253	0.121	-0.462	-0.055
5WW1	11.6	17.0	1.99	5.192	0.51	0.059	7.4	8	0.858	0.109	-0.329	-0.049
5WW2	11.6	17.0	0.19	5.192	0.51	0.006	1.4	4	1.443	0.156	-0.387	-0.066
5WW2	11.6	17.0	1.99	5.192	0.51	0.059	7.4	8	1.151	0.182	-0.270	-0.053
5WW3	11.6	17.0	0.19	5.192	0.51	0.006	1.4	4	1.626	0.175	-0.238	-0.050
5WW3	11.6	17.0	1.99	5.192	0.51	0.059	7.4	8	1.342	0.214	-0.163	-0.062
5WW4	11.6	17.0	0.19	5.192	0.51	0.006	1.4	4	1.781	0.192	-0.224	-0.070
5WW4	11.6	17.0	1.99	5.192	0.51	0.059	7.4	8	1.487	0.246	-0.126	-0.054

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
5WW5	11.6	17.0	0.19	5.180	0.51	0.006	1.4	4	1.969	0.198	-0.329	-0.162
5WW5	11.6	16.9	1.98	5.180	0.50	0.059	7.4	8	1.633	0.212	-0.088	-0.054
5WW6	11.6	17.0	0.19	5.180	0.51	0.006	1.4	4	2.082	0.272	-1.041	-0.380
5WW6	11.6	16.9	1.98	5.180	0.50	0.059	7.4	8	1.665	0.159	-0.231	-0.241
5WW7	11.6	17.0	0.19	5.180	0.51	0.006	1.4	4	2.244	0.220	-1.083	-0.326
5WW7	11.6	16.9	1.98	5.180	0.50	0.059	7.4	8	1.766	0.151	-0.741	-0.167
3EW1	11.6	17.0	0.19	5.180	0.51	0.006	1.4	4	-0.084	0.027	-1.155	-0.082
3EW1	11.6	16.9	1.98	5.180	0.50	0.059	7.4	8	-0.128	0.030	-1.065	-0.103
3EW2	11.6	17.0	0.19	5.180	0.51	0.006	1.4	4	-0.103	0.052	-1.248	-0.092
3EW2	11.6	16.9	1.98	5.180	0.50	0.059	7.4	8	-0.173	0.054	-1.102	-0.108
3EW3	11.6	17.0	0.20	5.029	0.52	0.006	1.5	4	-0.097	0.036	-1.330	-0.146
3EW3	11.6	16.9	1.98	5.029	0.52	0.061	7.6	8	-0.170	0.026	-1.173	-0.134
3EW4	11.6	17.0	0.20	5.029	0.52	0.006	1.5	4	-0.061	0.037	-1.275	-0.093
3EW4	11.6	16.9	1.98	5.029	0.52	0.061	7.6	8	-0.130	0.051	-1.064	-0.116
3EW5	11.6	17.0	0.20	5.029	0.52	0.006	1.5	4	0.025	0.045	-1.357	-0.157
3EW5	11.6	16.9	1.98	5.029	0.52	0.061	7.6	8	-0.105	0.033	-1.082	-0.092
5EW1	11.6	17.0	0.20	5.029	0.52	0.006	1.5	4	-0.086	0.056	-1.212	-0.081
5EW1	11.6	16.9	1.98	5.029	0.52	0.061	7.6	8	-0.151	0.035	-1.076	-0.079
5EW2	11.6	17.0	0.20	5.029	0.52	0.006	1.5	4	-0.118	0.036	-1.300	-0.091
5EW2	11.6	16.9	1.98	5.029	0.52	0.061	7.6	8	-0.170	0.037	-1.159	-0.101

STOP --

EXP035

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
NEW TEST HOUSE ,MOUNTED NEAR CENTRE OF TURNTABLE, 11 TAPPINGS
B.R.E. RECORD A38-, WIND DIRECTION 233 DEG.
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBES BETWEEN TRANSDUCER AND SCANI AND SCANI AND TAPPINGS
PITOT 10 M ABOVE ANEMOMETER SITE
OVERHANG FITTED FOR THIS RUN
ROOF PITCH 22.5 DEG

PROCESSED DATA :-

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA -TION TIME (MINS)	FULL SCALE EQUIVA -LENT AVERAG- ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA -TION TIME (MINS)	WIND TUNNEL AVERAG- ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER- SION	MINIMA MODE	MINIMA DISPER- SION
5EW3	11.6	17.0	0.20	5.055	0.52	0.006	1.5	4	-0.072	0.036	-1.509	-0.173
5EW3	11.6	17.0	1.99	5.055	0.52	0.061	7.6	8	-0.172	0.037	-1.181	-0.126
5EW4	11.6	17.0	0.20	5.055	0.52	0.006	1.5	4	-0.051	0.049	-1.425	-0.205
5EW4	11.6	17.0	1.99	5.055	0.52	0.061	7.6	8	-0.139	0.030	-1.152	-0.111
5EW5	11.6	17.0	0.20	5.055	0.52	0.006	1.5	4	0.027	0.032	-1.317	-0.154
5EW5	11.6	17.0	1.99	5.055	0.52	0.061	7.6	8	-0.096	0.035	-1.057	-0.117
3SW1	11.6	17.0	0.20	5.055	0.52	0.006	1.5	4	1.963	0.242	-1.850	-0.218
3SW1	11.6	17.0	1.99	5.055	0.52	0.061	7.6	8	1.653	0.190	-1.253	-0.201
3SW2	11.6	17.0	0.20	5.055	0.52	0.006	1.5	4	1.774	0.159	-1.918	-0.280
3SW2	11.6	17.0	1.99	5.055	0.52	0.061	7.6	8	1.399	0.144	-1.287	-0.160
3SW3	11.6	17.0	0.19	5.017	0.52	0.006	1.5	4	1.250	0.140	-1.025	-0.173
3SW3	11.6	17.0	2.00	5.017	0.52	0.062	7.7	8	1.023	0.146	-0.566	-0.123
3SW4	11.6	17.0	0.19	5.017	0.52	0.006	1.5	4	0.619	0.127	-0.727	-0.075
3SW4	11.6	17.0	2.00	5.017	0.52	0.062	7.7	8	0.418	0.068	-0.642	-0.071
5SW1	11.6	17.0	0.19	5.017	0.52	0.006	1.5	4	2.018	0.155	-2.170	-0.325
5SW1	11.6	17.0	2.00	5.017	0.52	0.062	7.7	8	1.601	0.161	-1.533	-0.258
5SW2	11.6	17.0	0.19	5.017	0.52	0.006	1.5	4	1.738	0.187	-1.935	-0.263
5SW2	11.6	17.0	2.00	5.017	0.52	0.062	7.7	8	1.435	0.110	-1.472	-0.311
3NW1	11.6	17.0	0.19	5.017	0.52	0.006	1.5	4	0.035	0.041	-1.227	-0.187
3NW1	11.6	17.0	2.00	5.017	0.52	0.062	7.7	8	-0.030	0.041	-0.999	-0.167
3NW2	11.6	17.0	0.20	5.102	0.52	0.006	1.5	4	-0.004	0.029	-1.219	-0.178
3NW2	11.6	16.9	1.98	5.102	0.51	0.060	7.5	8	-0.081	0.039	-1.146	-0.184

STOP --

EXP036

DESCRIPTION OF EXTREME PRESSURE COEFFICIENT DATA FILE

WIND SIMULATION AS DESCRIBED IN O.U.E.L. REPORT 1213/77
NEW TEST HOUSE, MOUNTED NEAR CENTRE OF TURNTABLE, 19 TAPPINGS
B.R.E. RECORD A38-, WIND DIRECTION 233 DEG.
BACK OF TRANSDUCER CONNECTED TO SITE REFERENCE MANHOLE
20 CM TUBE BETWEEN TRANSDUCER AND SCANI AND BETWEEN SCANI AND TAPPINGS
PITOT 10 M ABOVE ANEMOMETER SITE
OVERHANG FITTED FOR THIS RUN
ROOF PITCH 22.5 DEG.

PRESSURE TAPPING HOLE CODE	FULL SCALE AVERAGE WIND SPEED (M/S)	FULL SCALE OBSERVA-TION TIME (MINS)	FULL SCALE EQUIVA-LENT AVERAG-ING TIME (SECS)	WIND TUNNEL MEAN WIND VELOCITY (M/S)	WIND TUNNEL OBSERVA-TION TIME (MINS)	WIND TUNNEL AVERAG-ING TIME (SECS)	WIND TUNNEL SAMPLING INTERVAL (mS)	NUMBER OF SAMPLING INTERVAL OVER WHICH DATA WAS AVERAGED	EXTREME PRESSURE COEFFICIENTS: MAXIMA MODE	MAXIMA DISPER-SION	MINIMA MODE	MINIMA DISPER-SION
WR1A	11.6	17.0	0.20	5.036	0.52	0.006	1.5	4	0.893	0.122	-2.026	-0.327
WR1A	11.6	16.9	1.98	5.036	0.52	0.061	7.6	8	0.423	0.107	-1.249	-0.274
WR1B	11.6	17.0	0.20	5.036	0.52	0.006	1.5	4	0.783	0.252	-2.194	-0.208
WR1B	11.6	16.9	1.98	5.036	0.52	0.061	7.6	8	0.308	0.098	-1.505	-0.287
WR1C	11.6	17.0	0.20	5.036	0.52	0.006	1.5	4	0.656	0.150	-2.088	-0.219
WR1C	11.6	16.9	1.98	5.036	0.52	0.061	7.6	8	0.191	0.082	-1.484	-0.134
WR1E	11.6	17.0	0.20	5.036	0.52	0.006	1.5	4	0.811	0.174	-1.318	-0.141
WR1E	11.6	16.9	1.98	5.036	0.52	0.061	7.6	8	0.498	0.116	-0.933	-0.087
WR1F	11.6	17.0	0.20	5.036	0.52	0.006	1.5	4	0.375	0.140	-2.216	-0.341
WR1F	11.6	16.9	1.98	5.036	0.52	0.061	7.6	8	-0.050	0.066	-1.455	-0.190
WR2C	11.6	17.0	0.20	5.046	0.52	0.006	1.5	4	0.701	0.129	-1.603	-0.304
WR2C	11.6	16.9	1.98	5.046	0.52	0.061	7.6	8	0.432	0.101	-0.928	-0.163
WR2E	11.6	17.0	0.20	5.046	0.52	0.006	1.5	4	0.666	0.118	-1.423	-0.193
WR2E	11.6	16.9	1.98	5.046	0.52	0.061	7.6	8	0.394	0.062	-0.986	-0.083
WR3A	11.6	17.0	0.20	5.046	0.52	0.006	1.5	4	0.736	0.174	-2.557	-0.398
WR3A	11.6	16.9	1.98	5.046	0.52	0.061	7.6	8	0.453	0.077	-1.737	-0.204
WR3B	11.6	17.0	0.20	5.046	0.52	0.006	1.5	4	0.577	0.091	-1.289	-0.387
WR3B	11.6	16.9	1.98	5.046	0.52	0.061	7.6	8	0.371	0.065	-0.717	-0.155
WR3C	11.6	17.0	0.20	5.093	0.52	0.006	1.5	4	0.478	0.095	-0.852	-0.167
WR3C	11.6	16.9	1.98	5.093	0.51	0.060	7.5	8	0.242	0.056	-0.605	-0.075
WR3D	11.6	17.0	0.20	5.093	0.52	0.006	1.5	4	0.423	0.110	-0.993	-0.129
WR3D	11.6	16.9	1.98	5.093	0.51	0.060	7.5	8	0.184	0.079	-0.659	-0.070
WR3E	11.6	17.0	0.20	5.093	0.52	0.006	1.5	4	0.401	0.102	-0.860	-0.059
WR3E	11.6	16.9	1.98	5.093	0.51	0.060	7.5	8	0.210	0.051	-0.629	-0.091
WR4C	11.6	17.0	0.20	5.093	0.52	0.006	1.5	4	0.476	0.070	-1.026	-0.184
WR4C	11.6	16.9	1.98	5.093	0.51	0.060	7.5	8	0.193	0.035	-0.772	-0.135
ER1A	11.6	17.0	0.20	5.093	0.52	0.006	1.5	4	-0.071	0.052	-2.279	-0.165
ER1A	11.6	16.9	1.98	5.093	0.51	0.060	7.5	8	-0.247	0.052	-1.713	-0.194
ER1B	11.6	17.0	0.20	5.146	0.51	0.006	1.5	4	0.026	0.060	-1.708	-0.224
ER1B	11.6	17.0	2.00	5.146	0.51	0.060	7.5	8	-0.162	0.038	-1.249	-0.108
ER2A	11.6	17.0	0.20	5.146	0.51	0.006	1.5	4	-0.110	0.040	-2.229	-0.273
ER2A	11.6	17.0	2.00	5.146	0.51	0.060	7.5	8	-0.232	0.041	-1.881	-0.135
ER2B	11.6	17.0	0.20	5.146	0.51	0.006	1.5	4	-0.033	0.059	-2.136	-0.169
ER2B	11.6	17.0	2.00	5.146	0.51	0.060	7.5	8	-0.218	0.054	-1.689	-0.205
ER3A	11.6	17.0	0.20	5.146	0.51	0.006	1.5	4	-0.143	0.020	-3.347	-0.345
ER3A	11.6	17.0	2.00	5.146	0.51	0.060	7.5	8	-0.238	0.042	-2.491	-0.373
ER3B	11.6	17.0	0.20	5.146	0.51	0.006	1.5	4	-0.094	0.033	-2.135	-0.145
ER3B	11.6	17.0	2.00	5.146	0.51	0.060	7.5	8	-0.199	0.036	-1.453	-0.136

APPENDIX B

TECHNIQUES OF SHORT TERM AVERAGING

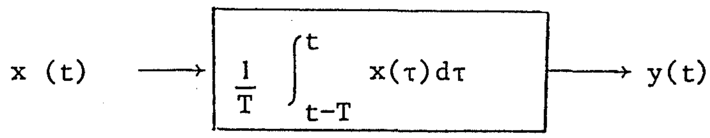
M. E. Greenway

Motivation for use of Short time averager

The interest in short-time averaged signals arises when considering extreme loads on, for example, a cladding panel. The extreme load on the panel is due to the maximum pressure which can be correlated over the whole panel. Correlation over a given distance can be related to the averaging time of the pressure measurement, either through the concept of eddy size or by considering coherence functions (Lawson 1976, Newberry, Eaton and Mayne 1973).

Ideal Short-time averager

Suppose that $x(t)$ forms the input to a device which measures a running time average, as shown schematically in the fig.



The output of such a device is $$y(t) = \frac{1}{T}\int_{t-T}^{t} x(\tau)d\tau \qquad \text{(B1)}$$

To determine the frequency response of such a device, we need to find the output corresponding to an input $x(t) = e^{i\omega t}$

$$\text{i.e.}\quad y(t) = F(\omega)\, e^{i\omega t} = \frac{1}{T}\int_{t-T}^{t} e^{i\omega\tau}\, d\tau$$

where $F(\omega)$ is the frequency response function

$$\therefore\; F(\omega)e^{i\omega t} = \frac{1}{T}\,\frac{e^{i\omega t}}{i\omega}\Bigg|_{t-T}^{t} = \frac{1}{T}\, e^{i\omega t}\left(\frac{1 - e^{-i\omega t}}{i\omega}\right)$$

$$\therefore\; F(\omega) = \frac{1 - e^{-i\omega t}}{i\omega T} = e^{-\frac{i\omega t}{2}} \cdot \frac{\mathrm{Sin}\left(\frac{\omega T}{2}\right)}{\left(\frac{\omega T}{2}\right)}$$

$$\therefore\; |F(\omega)| = \frac{\left|\,\sin\left(\frac{\omega T}{2}\right)\right|}{\left(\frac{\omega T}{2}\right)} \qquad \text{(B2)}$$

TABLE B1

Comparison of Digital and Analogue Frequency Response Functions

	DIGITAL AVERAGING						ANALOG AVERAGING
	Algorithm: $\bar{y}(n\Delta t) = \frac{1}{m}\sum_{p=o}^{m-1} \bar{x}(n\Delta t-p\Delta t)$			Frequency Response: $F(\omega) = \frac{1}{m}\left\lvert\frac{\sin(\frac{m\omega\pi}{2\omega_{max}})}{\sin(\frac{\omega\pi}{2\omega_{max}})}\right\rvert$			$y(t) = \frac{1}{T}\int_{t-T}^{t} x(\tau)d\tau$
$\frac{m\omega}{\omega_{max}}$	F(ω) m=2 (dB)	F(ω) m=3 (dB)	F(ω) m=4 (dB)	F(ω) m=6 (dB)	F(ω) m=8 (dB)	F(ω) m=16 (dB)	$F(\omega) = \frac{\lvert\sin\frac{\omega m\pi}{2\omega_{max}}\rvert}{(\frac{\omega m\pi}{2\omega_{max}})}$
0.01	0.00024	0.0003	0.00031	0.00033	0.00033	0.00033	0.00033
0.02	0.00111	0.00127	0.00135	0.0014	0.00142	0.00144	0.00144
0.05	0.0067	0.0079	0.00835	0.00866	0.00879	0.00889	0.00893
0.10	0.0268	0.0318	0.0335	0.0347	0.0352	0.0356	0.0357
0.20	0.1076	0.1275	0.1344	0.1394	0.1411	0.1428	0.1433
0.40	0.4359	0.5156	0.5435	0.5634	0.5703	0.5770	0.5792
0.60	1.002	1.1829	1.2458	1.2905	1.3062	1.3213	1.3263
0.80	1.8409	2.1646	2.2767	2.3565	2.3843	2.4112	2.4201
1.0	3.010	3.5218	3.698	3.8230	3.8665	3.9085	3.9224
1.1	3.7491	4.3722	4.5861	4.7375	4.7903	4.841	4.8579
1.4	6.8591	7.8935	8.2438	8.4905	8.5762	8.6585	8.6859
2.0	108	111	112	112	112	113	102.7
3.0	3.010	9.5424	11.3535	12.5527	12.9566	13.3389	13.464

TABLE B1

Comparison of Digital and Analogue Frequency Response Functions

$\frac{m\omega}{\omega_{max}}$	DIGITAL AVERAGING Algorithm: $\bar{y}(n\Delta t) = \frac{1}{m}\sum_{p=o}^{m-1} \bar{x}(n\Delta t - p\Delta t)$ Frequency Response: $F(\omega) = \frac{1}{m}\left\lvert \frac{\sin(\frac{m\omega\pi}{2\omega_{max}})}{\sin(\frac{\omega\pi}{2\omega_{max}})} \right\rvert$						ANALOG AVERAGING $y(t) = \frac{1}{T}\int_{t-T}^{t} x(\tau)d\tau$
	F(ω) m=2 (dB)	F(ω) m=3 (dB)	F(ω) m=4 (dB)	F(ω) m=6 (dB)	F(ω) m=8 (dB)	F(ω) m=16 (dB)	$F(\omega) = \left\lvert \frac{\sin \frac{\omega m\pi}{2\omega_{max}}}{(\frac{\omega m\pi}{2\omega_{max}})} \right\rvert$
0.01	0.00024	0.0003	0.00031	0.00033	0.00033	0.00033	0.00033
0.02	0.00111	0.00127	0.00135	0.0014	0.00142	0.00144	0.00144
0.05	0.0067	0.0079	0.00835	0.00866	0.00879	0.00889	0.00893
0.10	0.0268	0.0318	0.0335	0.0347	0.0352	0.0356	0.0357
0.20	0.1076	0.1275	0.1344	0.1394	0.1411	0.1428	0.1433
0.40	0.4359	0.5156	0.5435	0.5634	0.5703	0.5770	0.5792
0.60	1.002	1.1829	1.2458	1.2905	1.3062	1.3213	1.3263
0.80	1.8409	2.1646	2.2767	2.3565	2.3843	2.4112	2.4201
1.0	3.010	3.5218	3.698	3.8230	3.8665	3.9085	3.9224
1.1	3.7491	4.3722	4.5861	4.7375	4.7903	4.841	4.8579
1.4	6.8591	7.8935	8.2438	8.4905	8.5762	8.6585	8.6859
2.0	108	111	112	112	112	113	102.7
3.0	3.010	9.5424	11.3535	12.5527	12.9566	13.3389	13.464

In order to compare this frequency response of an analog averager with that of a digital averager, it will be convenient to express the averaging time, T, in terms of the Nyquist sampling interval Δt, or equivalently in terms of the bandwidth, ω_{max} (rad/s), of the input signal x(t). Suppose that the averaging time period, T, is made up of m intervals of duration Δt, i.e.

$$T = m\,\Delta t = \frac{m\,\pi}{\omega_{max}}$$

Then in terms of ω_{max}, the frequency response function (2), can be expressed as

$$|F(\omega)| = \frac{\left|\sin\left(\frac{\omega m \pi}{2\omega_{max}}\right)\right|}{\frac{\omega m \pi}{2\omega_{max}}} \qquad \text{(B3)}$$

Discrete Approximation to the Ideal Short-Time Averager

Suppose that a signal x(t) forms the input to a device which samples the signal periodically at discrete time intervals. With a digital computer and discrete samples of a signal, the obvious way to achieve an approximate short time average would be to perform a numerical integration. The common techniques of Simpson's rule or the Trapezium rule could be used but a simple "running average" will be shown to be satisfactory.

To perform any numerical integration, successive samples are multiplied by weighting factors and the resulting terms summed over the interval of interest. This can be represented by the difference equation

$$y(n\Delta t) = \sum_{p=0}^{m-1} L_p\, x\left[n\Delta t - p\Delta t\right] \qquad \text{(B4)}$$

where the L_p, p = o, 1, 2, ... (m-1). are the weighting factors. This procedure is illustrated in figure B1.

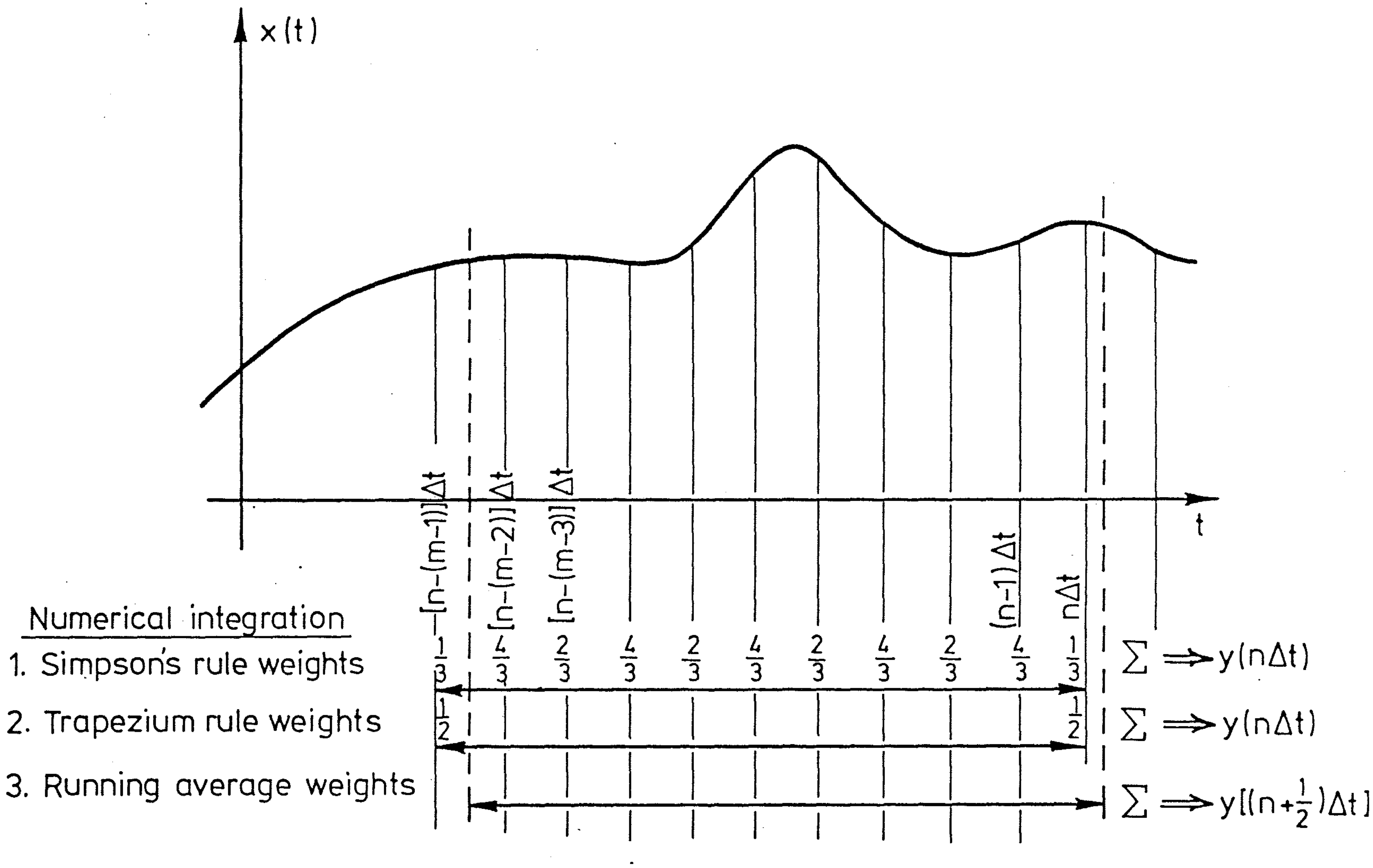


FIGURE B1

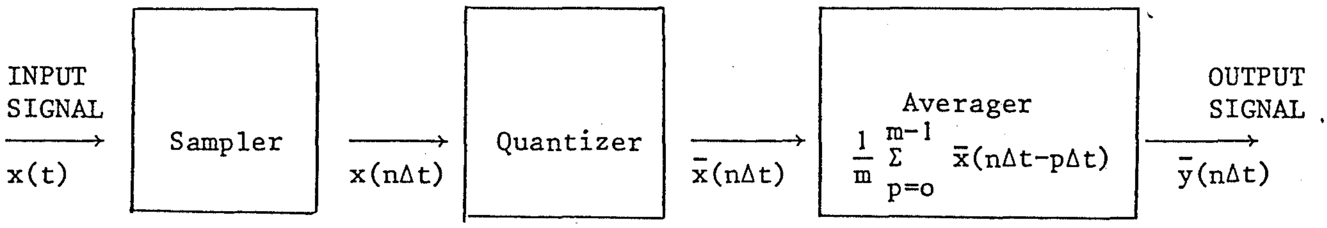
Relationship between discrete sample averaging and analogue averaging

Now the behaviour of a digital filter can be expressed by a linear difference equation with a general form given by

$$y(n\Delta t) = \sum_{p=o}^{m-1} L_p\, x(n\Delta t - p\Delta t) - \sum_{p=1}^{r-1} K_p y(n\Delta t - p\Delta t) \qquad (B5)$$

where the L_p, $p = 0, 1, \ldots (m-1)$ and K_p, $p = 1, 2, \ldots, (r-1)$, are constant weighting factors.

Clearly the difference equation (4) for the output of a numerical integrator is of the form (5), and so the integrator can be regarded as a digital filter. The frequency response of a digital filter can be systematically investigated either by use of the z transform or by the use of the discrete Fourier transform (D.F.T.) (Gold and Rader 1969). One of these methods would have to be used for the Simpson's rule and trapezium rule cases. However, the frequency response of the "running average" method illustrated schematically below



can be deduced from its difference equation representation, namely,

$$\bar{y}\left[(n+\tfrac{1}{2})\Delta t\right] = \frac{1}{m} \sum_{p=o}^{m-1} \bar{x}\,(n\Delta t - p\Delta t) \qquad (B6)$$

by substituting $x(t) = e^{i\omega t}$, and performing the summation of the right hand side of (6)

$$\bar{y}\left((n+\tfrac{1}{2})\Delta t\right) = F(\omega)\, e^{in\omega\Delta t} = \frac{1}{m} \sum_{p=o}^{m-1} e^{i(n-p)\omega\Delta t}$$

$$\therefore F(\omega) = \frac{1}{m} \sum_{p=o}^{m-1} e^{-ip\omega\Delta t} = \frac{1}{m} \frac{1-e^{-im\omega\Delta t}}{1-e^{-i\omega\Delta t}}$$

$$= \frac{1}{m} e^{\frac{-i(m-1)\omega\Delta t}{2}} \frac{\sin\left(\frac{m\omega\Delta t}{2}\right)}{\sin\left(\frac{\omega\Delta t}{2}\right)}$$

putting, as before $\Delta t = \frac{\pi}{\omega_{max}}$

$$|F(w)| = \frac{1}{m} \left| \frac{\sin \frac{m\omega\pi}{2\omega_{max}}}{\sin \frac{\omega\pi}{2\omega_{max}}} \right| \qquad \text{(B7)}$$

In terms of the averaging time T (T = mΔt), equation (B7) may be expressed as

$$|F(n)| = \left| \frac{\sin(n\pi T)}{m \sin(n\pi T/m)} \right|$$

where n is the frequency in Hz.

The frequency response functions (3) and (7) are tabulated in table B1 and plotted in fig.B2 in the form of attenuation in decibels vs the frequency ratio $\frac{m\omega}{\omega_{max}}$. It can be seen that provided the signal has a band limit of ω_{max}(rad/s) the only region of interest is $0 < \omega < \omega_{max}$ or $0 < \frac{\omega}{\omega_{max}} < 1$.

The digital (numerical) averager's frequency response approaches that of the ideal averager's frequency response for values of $m \geq 4$. The cut off frequency of the ideal averager's frequency response (defined by the 3dB point) is given by

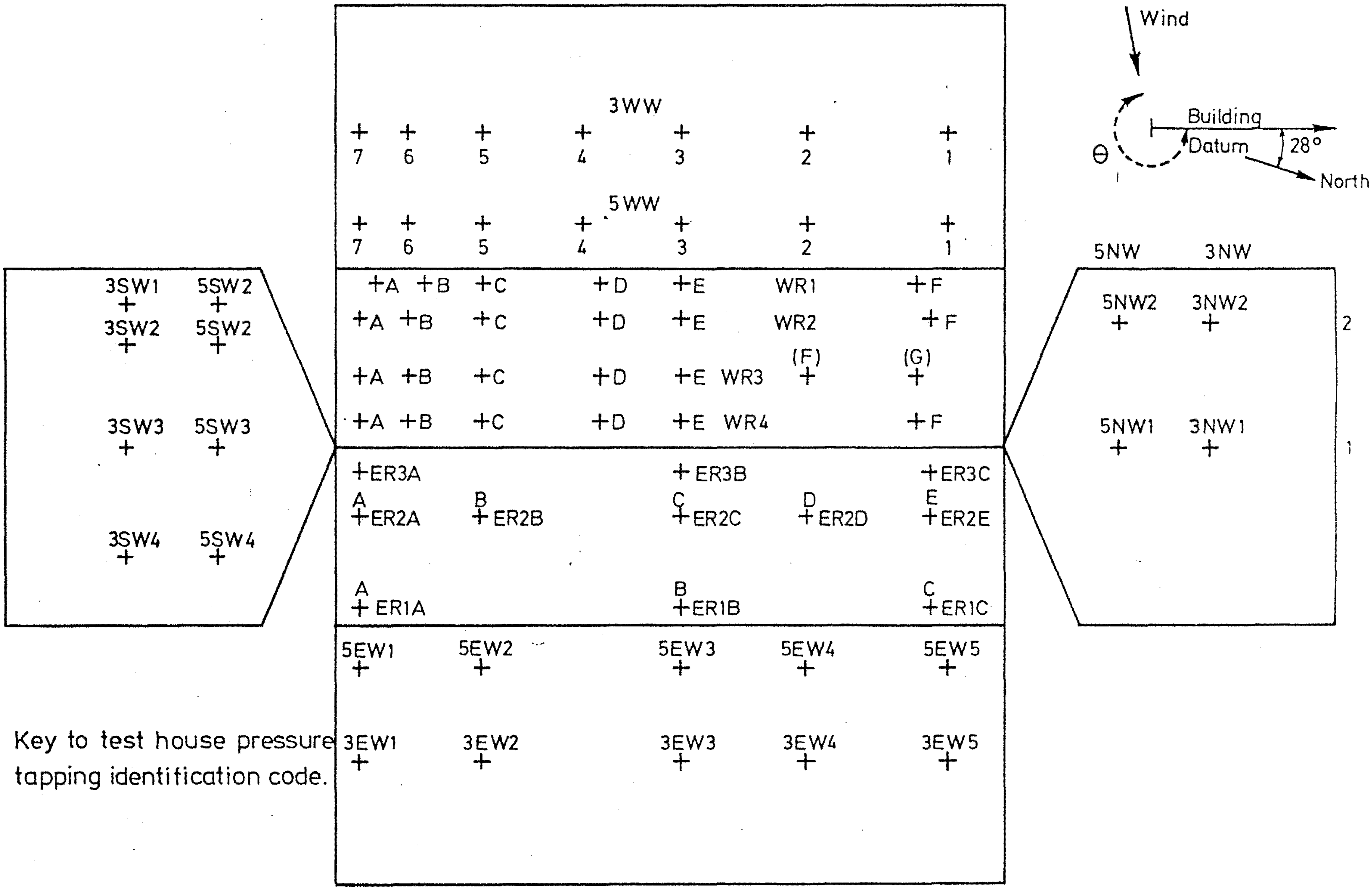
$$\frac{m\omega}{\omega_{max}} = 0.885$$

$$\therefore \quad \omega_{cut\ off} = \frac{0.885}{m}\ \omega_{max} \quad (rad/s)$$

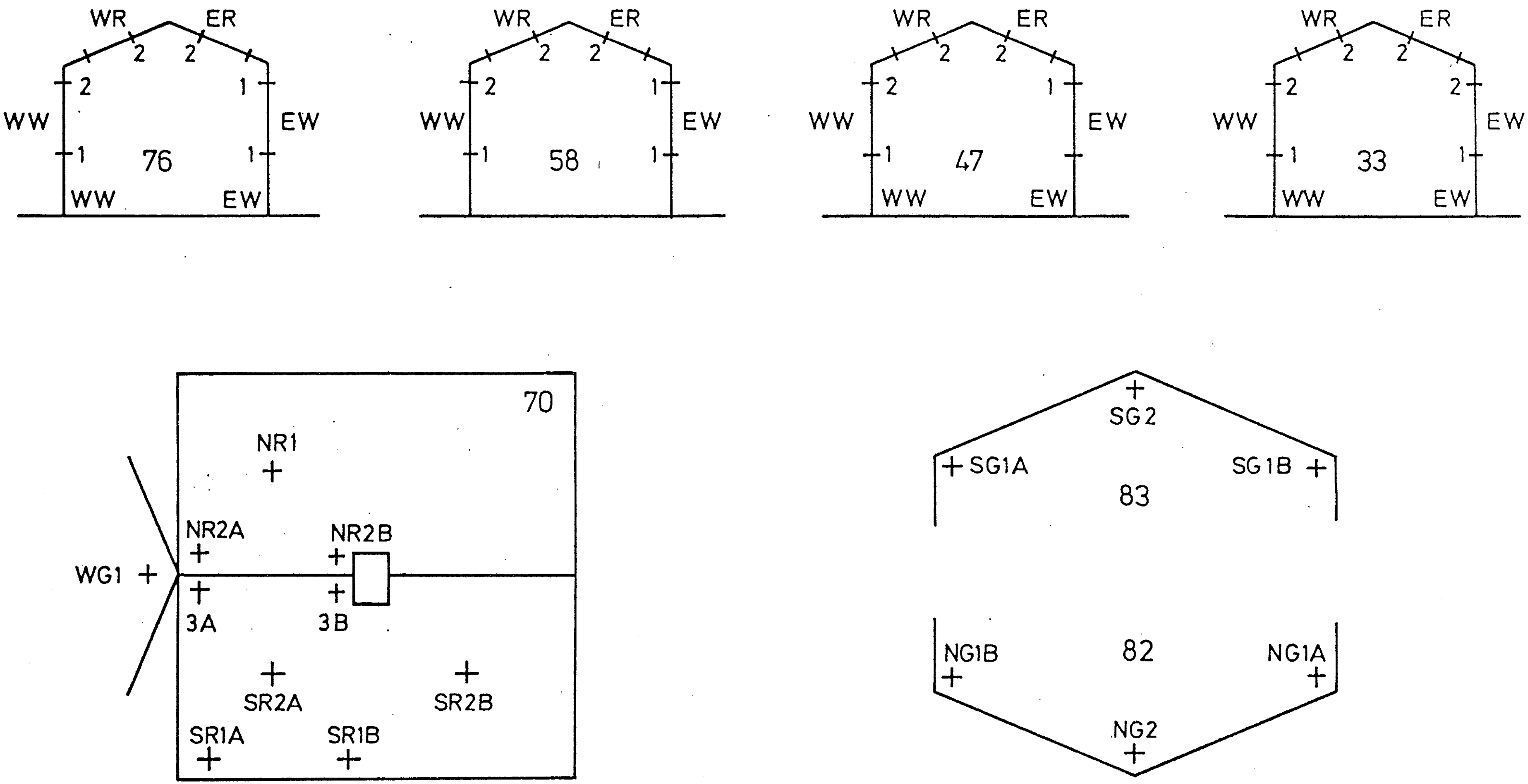
$$\longrightarrow$$

$$\omega_{cut\ off} = 0.885\ \frac{\pi}{T} = \frac{2.78}{T} \quad (rad/s)$$

$$n_{cut\ off} = \frac{0.44}{T} \quad (Hz)$$



Key to test house pressure tapping identification code.



Key to estate house pressure tapping identification code.

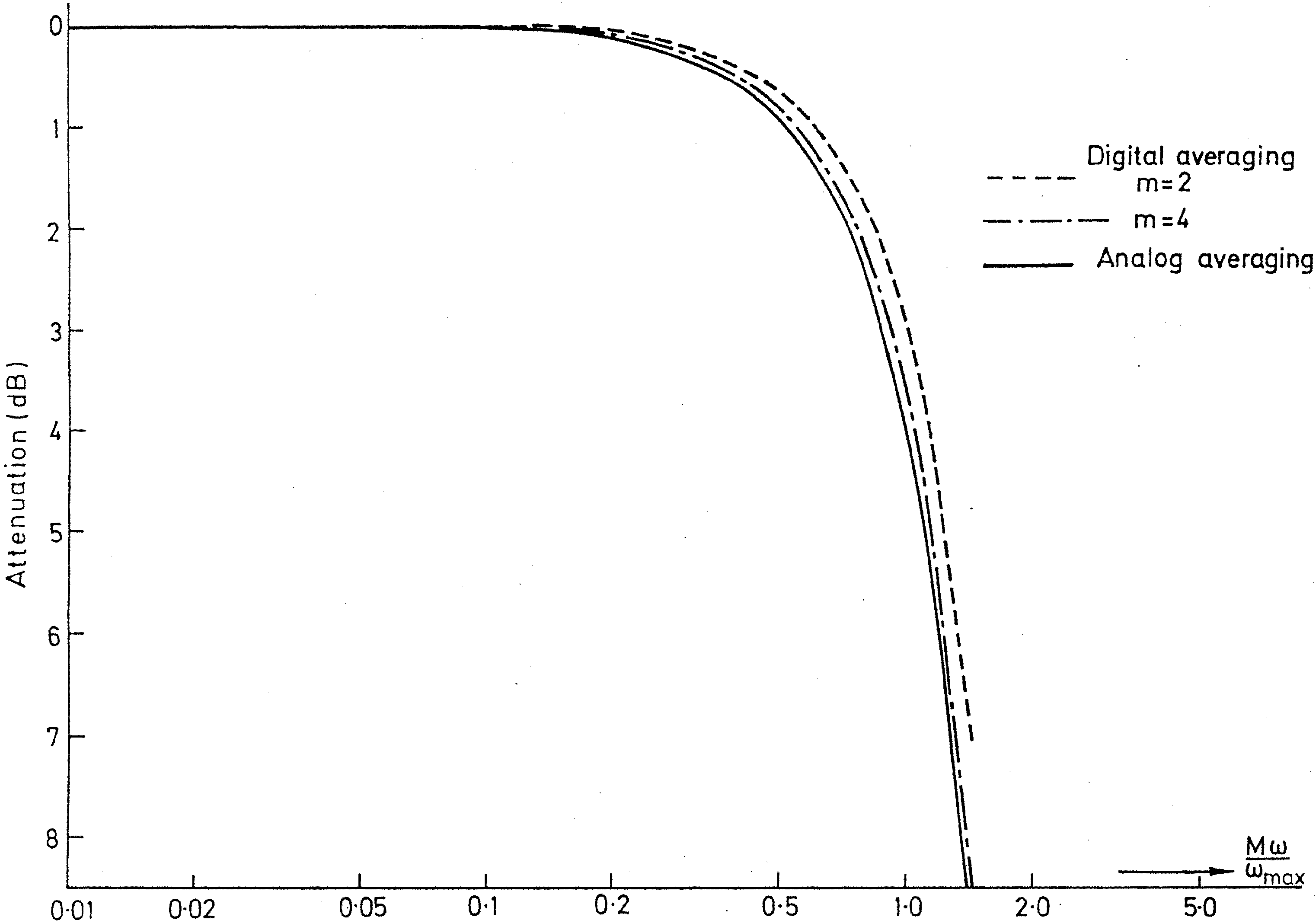


FIGURE B2

Frequency Response Comparison for Digital and Analogue Averaging

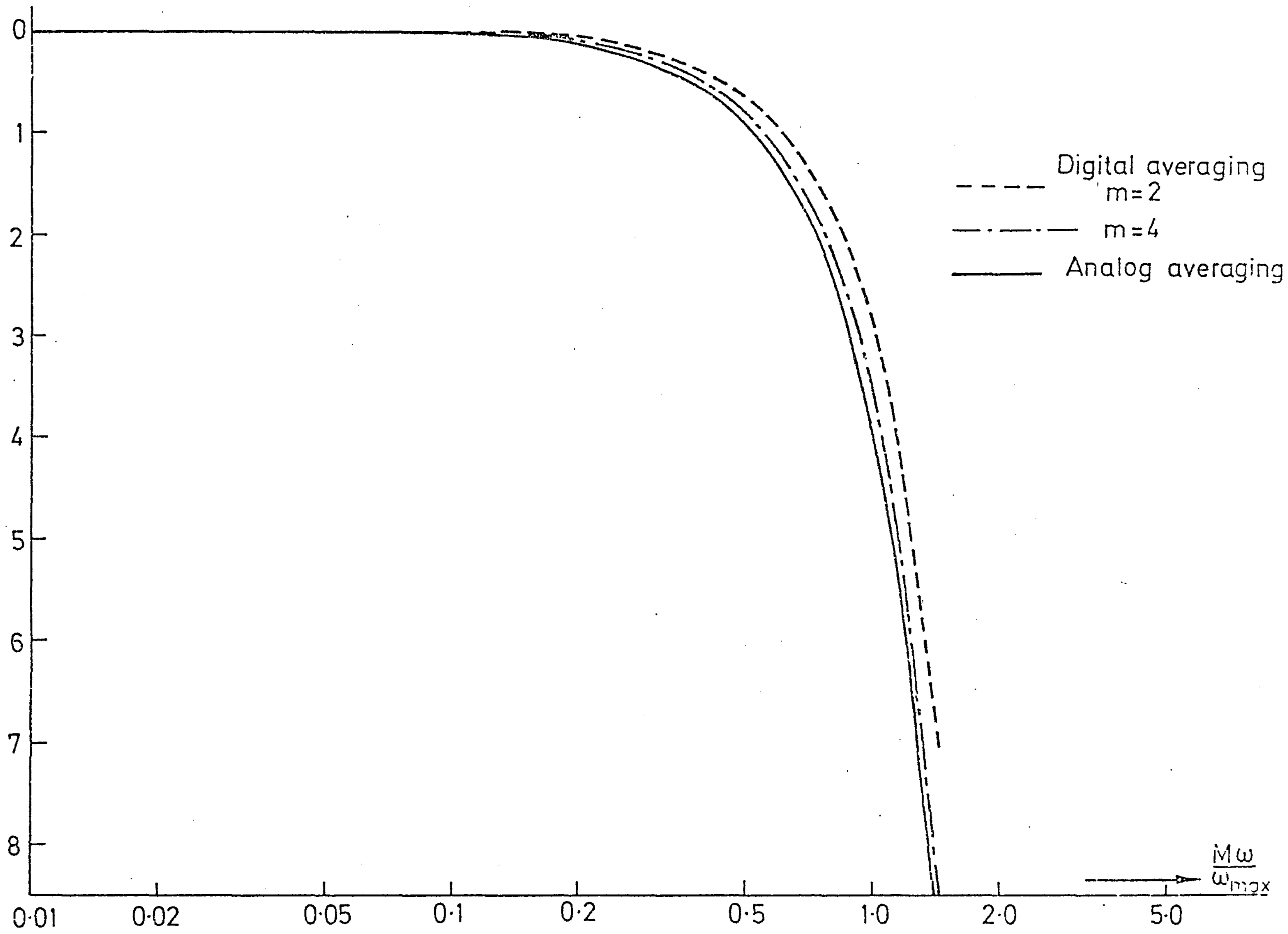


FIGURE B2

Frequency Response Comparison for Digital and Analogue Averaging