

RESEARCH REPORT

External Research Program



Performance Evaluation of Water Repellents for Above Grade Masonry



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**PERFORMANCE EVALUATION
OF WATER REPELLENTS FOR
ABOVE GRADE MASONRY**

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December 15, 1997

CMHC Project Officer: Jacques Rousseau

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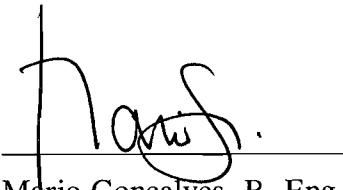
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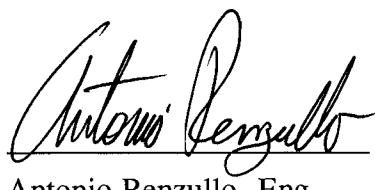
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ABSTRACT

Water penetration across brick masonry exterior walls is a problem which building owners and construction professionals must deal with frequently. Water repellents are often used in an attempt to resolve water penetration problems in certain remedial applications. Unfortunately the information available to building owners and construction professionals regarding the use and evaluation of water repellents is limited. Little practical information exists to assist in the selection of such products and in the evaluation of their performance and durability.

As part of a CMHC research project, Patenaude-Chiovitti Inc. carried out an evaluation of such products, exposing problems of performance evaluation of water repellents for above grade masonry.

Six series of tests were conducted using a modified ASTM E-514 procedure and water uptake tube methods to evaluate the performance of five commercially available masonry coatings. The results of the study have indicated substantial improvements in the resistance to water penetration upon application of these coatings to masonry wall assemblies.

The data accumulated during this study also revealed a trend indicating an increase in the rate of water penetration from the time of product application (i.e.; reduced repellency), necessitating product reapplication after a given time interval.

Readers are cautioned in the interpretation of the test data without additional information pertaining to the vapour diffusion characteristics of the applied products.

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DISCLAIMER

This project was carried out with the assistance of a financial contribution from Canada Mortgage and Housing Corporation (CMHC) under the terms of the External Research Program. The views expressed are those of the authors and do not represent the official views of CMHC.

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- Robert Grignon
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EXECUTIVE SUMMARY

Water penetration across brick masonry exterior walls is a problem which building owners and construction professionals must deal with frequently. Sources of water leakage are often difficult to determine and are frequently a result of either poor workmanship, design and the quality or integrity of the brick masonry units and mortar joints, or a combination thereof.

Water repellents are often used in an attempt to resolve water penetration problems in certain remedial applications. Unfortunately the information available to building owners and construction professionals regarding the use and evaluation of water repellents is limited. Little practical information exists to assist in the selection of such products and in the evaluation of their performance and durability.

As part of a CMHC research project, Patenaude-Chiovitti Inc. carried out an evaluation of such products, exposing problems of performance evaluation of water repellents for above grade masonry. In order to evaluate the performance of water repellent products, a test procedure including a modified ASTM E-514 test procedure and water uptake tube tests were used to evaluate water penetration performance. In addition, air infiltration tests were also used to evaluate air leakage characteristics of masonry panel assemblies treated with masonry coatings. The evaluation of vapour diffusion performance is another very important aspect in the evaluation of water repellents, which is the focus of a separate study.

The research work had as primary objective to evaluate the performance of water repellents on a comparative basis and evaluate practical methods to evaluate their effectiveness in reducing water penetration.

Testing was carried out on six wall test specimens erected within a specifically designated exterior test chamber. The test chamber assembly was designed to create and maintain a static air pressure difference across the wall specimen. One side of the specimens was permanently exposed to natural meteorological conditions in order to evaluate the impact on performance after exposure.

Five different water repellents were applied, each on separate masonry test specimens with a sixth, untreated specimen serving as a control panel. Each of the five selected water repellents were specially intended for masonry applications and are identified by their generic classification as follows:

- 40% silane (solvent based)
- polysiloxane blend (solvent based)
- silane/polysiloxane blend (water based)
- siloxane/silane blend (water based)
- elastomeric waterproof coating

Six series of tests were conducted using the modified ASTM E-514 procedure and water uptake tube methods. The results of the study have indicated reductions in water penetration in the order of 34% to 99% upon application of commercially available masonry coatings.

Although the increased water repellency was generally confirmed by these two test methods, several factors were identified which could influence or bias test results. These factors included slight, normal occurring imperfections in the wall assembly, sample population, and nature of testing methods pertaining to size of test area and location. This bias was reflected in different results obtained between the modified ASTM E-514 procedure and water uptake tube method for the same panel assembly.

The data accumulated during this study also revealed a trend indicating an increase in the rate of water penetration from the time of product application (or decrease in repellency), necessitating product reapplication after a given time interval. Additional investigation is required to evaluate this phenomena although in some cases, it appears that the repellency may diminish significantly within two years of application.

Readers are cautioned in the interpretation of the test data without additional information pertaining to the vapour diffusion characteristics of the applied products.

RÉSUMÉ

L'infiltration de l'eau dans les murs de brique extérieurs constitue un problème avec lequel les propriétaires d'immeubles et les spécialistes de la construction doivent fréquemment composer. L'origine des infiltrations est souvent difficile à déterminer. Elles sont habituellement causées par une mauvaise exécution de l'ouvrage, une conception déficiente, des briques et des joints de mortier de qualité ou d'intégrité douteuse ou une combinaison de ces facteurs.

Les produits hydrofuges sont souvent utilisés dans l'espoir de régler un problème d'infiltration d'eau lors de certaines opérations de rattrapage. Malheureusement, l'information mise à la disposition des propriétaires d'immeubles et des spécialistes de la construction en matière d'utilisation et d'évaluation des hydrofuges est limitée. Il existe peu de renseignements pratiques pouvant contribuer au choix des produits et à l'évaluation de leur rendement et de leur durabilité.

Dans le cadre d'une recherche commandée par la SCHL, la firme Patenaude-Chiovitti Inc. a évalué des hydrofuges pour ouvrages de maçonnerie hors-sol et a fait état des problèmes inhérents à l'évaluation de leur rendement. Pour pouvoir évaluer le rendement des produits hydrofuges ainsi que l'efficacité de l'imperméabilisation, la firme a eu recours à une méthode d'essai constituée de la méthode ASTM E-514 modifiée et d'un procédé d'absorption d'eau faisant usage de tubes. En outre, des essais d'infiltration d'air ont servi à évaluer les caractéristiques de fuites d'air des panneaux de maçonnerie traités avec une membrane hydrofuge. L'évaluation du rendement au chapitre de la diffusion de la vapeur constitue un autre aspect très important de l'évaluation des hydrofuges et a fait l'objet d'une étude distincte.

Les travaux de recherche avaient comme principal objectif l'évaluation du rendement des produits hydrofuges, sur une base comparative, et l'évaluation des méthodes pratiques permettant de déterminer dans quelle mesure ils réussissent à réduire les infiltrations d'eau.

Les essais ont porté sur six panneaux muraux montés à l'intérieur d'une chambre d'essai extérieure spéciale. Cette chambre d'essai a été conçue pour créer et maintenir une différence de pression d'air statique sur toute la surface du panneau mural. Une face des panneaux était exposée en permanence aux conditions météorologiques naturelles pour en évaluer l'incidence sur le rendement après exposition.

Cinq hydrofuges différents ont été appliqués sur des panneaux d'essai séparés, le sixième panneau, non traité, servant de contrôle. Chacun des cinq hydrofuges choisis était conçu spécifiquement pour les ouvrages de maçonnerie. Ils sont identifiés selon leur classification générique, à savoir :

- silane à 40 % (à base de solvant)
- mélange de polysiloxane (à base de solvant)
- mélange de silane et de polysiloxane (à base d'eau)
- mélange de siloxane et de silane (à base d'eau)
- membrane élastomère hydrofuge

Six séries d'essais ont été réalisées à partir de la méthode modifiée ASTM E-514 et de la méthode à absorption d'eau utilisant des tubes. Les résultats de l'étude ont révélé que l'application des

hydrofuges à maçonnerie vendus dans le commerce permettait d'obtenir une réduction des infiltrations d'eau de l'ordre de 34 à 99 %.

Bien que l'imperméabilisation accrue ait généralement été confirmée par les deux méthodes d'essai, on a déterminé que plusieurs facteurs pouvaient influer sur les résultats ou les fausser. Ces facteurs sont les imperfections légères et normales des murs, l'échantillon ayant servi aux essais et la nature des méthodes d'essai relativement aux dimensions de la zone d'essai et à son emplacement. En effet, des résultats différents ont été obtenus pour un même panneau avec la méthode modifiée ASTM E-514 et la méthode à absorption d'eau utilisant des tubes.

Les données recueillies durant cette étude ont aussi révélé que le taux d'infiltration d'eau avait tendance à augmenter (ou l'imperméabilisation à diminuer) une fois le produit appliqué, nécessitant une nouvelle application du produit au bout d'un certain temps. Il faudra procéder à une étude complémentaire pour évaluer ce phénomène, quoique, dans certains cas, il semble que l'efficacité de l'imperméabilisation puisse diminuer considérablement dans les deux ans qui suivent l'application initiale.

Le lecteur doit se garder d'interpréter les résultats des essais sans avoir à sa disposition des données additionnelles sur les caractéristiques de diffusion de la vapeur des produits utilisés.



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1.0 INTRODUCTION

Water penetration across brick masonry exterior walls is a problem which building owners and construction professionals must deal with frequently. Sources of water leakage are often difficult to determine and are frequently a result of poor workmanship, design and the quality or integrity of the brick masonry units and mortar joints. Water repellents are often used in an attempt to resolve water penetration problems in certain remedial applications. Water repellents can be effective in reducing water infiltration in certain applications, if applied after proper diagnosis of the underlying problem and ensuring that the wall is properly maintained. It is important however to remember that the application of a water repellent is not a miracle remedy for water penetration problems and proper selection of an appropriate water repellent to meet a project's particular needs is essential to ensure proper performance.

Unfortunately, the information available to building owners and construction professionals regarding the use and evaluation of water repellents is limited. Little practical information exists to assist in the selection of such products and in the evaluation of their performance and durability. The research project presented in this report exposes the problem of performance evaluation of water repellents for above grade masonry.

In order to address these concerns, three test procedures were used for purposes of evaluating water repellent performance. These tests included a modified ASTM E-514 test procedure and a water uptake tube tests, to evaluate water penetration performance and air infiltration tests to evaluate air leakage characteristics of panel assemblies.

Another aspect in the evaluation of water repellents, not covered by this study, is vapour diffusion performance. This important characteristic should also be considered in the selection of a water repellent and is currently being investigated under a separate mandate.

2.0 OBJECTIVES AND SCOPE OF WORK

The primary objectives of the research work is to independently evaluate the performance of various water repellents on a comparative basis and develop practical methods to evaluate their effectiveness in reducing water penetration. In addition, the intent is to monitor short and long term performance of repellents after exposure.

Testing was carried out on six brick wall test specimens erected under field conditions, within a specially designed exterior test chamber assembly. The test chamber assembly was designed to create and maintain a differential static air pressure across the wall specimens. The front side of the specimens are permanently exposed to natural meteorological conditions in order to be able to evaluate impact on performance after exposure. Five different water repellent products were applied, each on separate test specimens with the sixth untreated specimen serving as the control panel.

3.0 PROJECT METHODOLOGY

A specially designed test chamber was built and six brick wall specimens were erected and treated with different water repellents, for comparative testing. The test chamber and specimens were constructed outside and positioned so that the specimens maintained a permanent southern exposure. A series of different tests were undertaken between the months of May to November 1996. Refer to appendix M for monthly meteorological summaries for this test period. The following is a description of the test chamber, sample preparation, choice of water repellents and testing methodologies and procedures.

3.1 Test Chamber

A test chamber capable of receiving a total of six brick wall specimens measuring approximately 1.57 m in height by 1.42 m in width each, was constructed for exterior laboratory testing. Refer to figure E.1 and photographs no.1 through 4 in appendices E and F, respectfully. The test chamber design criteria included the following considerations. Refer to appendix A for a detailed description of the criteria.

- *Sample size*
- *Air pressure*
- *Exterior exposure*
- *Handling of samples*
- *Access to wall samples*
- *Water collection*
- *Flexibility*
- *Working area*
- *Stability*

Although ASTM E-514 provides specific guidelines for a water penetration test chamber system, this system does not address all of the primary criteria previously outlined for this project. In order to be able to address all of these criteria, a custom designed test chamber was constructed. The test chamber was constructed of steel and wood framing, plywood sheathing and metal cladding. The test chamber measured a total of approximately 9750 mm in length by 3050 mm height and 1520 mm in depth. The framing for the wall samples consists of 50.8 mm x 203.2 mm hollow steel tubes. The roof, walls and raised floor of the chamber were constructed of 38 mm x 89 mm and 38mm x 140 mm wood framing, and 19mm plywood. The exterior walls and roof of the chamber were clad with 13mm particle board and metal cladding. The entire chamber was constructed upon a concrete slab on grade.

Particular attention to air tightness of the chamber was taken into consideration (i.e. in order to maintain a minimum differential air pressure of 500 Pa). All panel joints were sealed from the interior of the chamber and special care was taken to ensure a continuous air seal. A full size access door with a view window on the side of the chamber was provided for access. The door was designed with airtight gaskets and pressure clamps to assure airtightness. A permanent spot light was installed above each of the interior sides of the samples to facilitate observations. Each of the samples was equipped with individual water collectors. A drainage outlet to evacuate collected water (once measured), electrical outlets, and an exterior pressure reference were also incorporated within the chamber.

3.2 Sample Preparation

The brick wall samples were erected by professional masons. Standard clay brick with nominal dimensions 230 mm x 70 mm x 88 mm and pre-mixed mortar were used to construct the samples. The samples were erected over a consecutive two day period under conditions similar to normal site conditions and in accordance with methods of good building practice. Particular attention was taken to ensure a certain consistency in the laying of the bricks and mortar preparation. Refer to photographs no. 5 through 12.

The samples consisted of 20 rows and 6 lengths of brick in width each, with 10 mm concave tooled mortar joints, for a total dimension of 15875 mm in height by 14288 mm in width. The samples were erected within the exterior test chamber steel framing with a 19 mm joint between the brick and steel frame on the top and both sides of the samples. The joints between the brick and steel framing were sealed with a polyurethane sealant to allow movement of the brick assembly as a result of thermal and moisture expansion and to prevent the development of stresses within the wall assembly which could result in cracking. Steel brackets were installed on the back side at the top and two edges of the panels for lateral support. No anchors were used to tie the wall to the steel framing.

The six wall samples were erected simultaneously, one row at a time. The first row of bricks was laid over a 19 mm mortar bed and a guide line was drawn from one end of the chamber to the other, in order to ensure proper alignment and spacing. Strips of 13 mm fibreboard were temporarily placed along the side and top inside faces of the steel framing in order to ensure a consistent joint width between the brick and steel frame. A metal flashing (photographs no. 7 and 8) was installed over the second row of brick in order to collect infiltration water from the back sides (i.e. within the test chamber) of the samples.

3.3 Choice of Water Repellents

A total of five water repellent manufacturers participated in this research project. The selection of manufacturers was based on the following criteria:

- Reputability
- Presence in the market place
- Commitment to product research and development
- Sound technical support
- Product selection
- Willingness to participate

After discussions with each of the participating manufacturers, a water repellent from their product line was selected. Each of the selected water repellents was specially developed for masonry applications.

The test panels were treated with a different product (with the exception of one of the six panels which remained untreated - control panel). Refer to photograph no. 13. Surface preparation by acid washing was not conducted in order to minimize potential effects on results. In order to protect the manufacturers' identity, each of the products are identified generically. Product identification per panel is as follows:

- | | |
|----------|---|
| Panel A: | 40% Silane (solvent based) |
| Panel B: | Polysiloxane blend (solvent based) |
| Panel C: | Silane/polysiloxane blend (water based) |
| Panel D: | Siloxane/silane blend (water based) |
| Panel E: | Elastomeric waterproof coating |
| Panel F: | Control Panel (no coating) |

Refer to figure E.1 for the identification of test panel assemblies. The products were applied by their respective manufacturer in accordance with their written recommendations.

3.4 Testing Methodology

The evaluation of product performance comprised a modified ASTM E-514 water penetration test, a water uptake tube test and air infiltration tests. A description of the different test methods is presented in the following sub-sections.

3.4.1 Modified ASTM E-514 Test Method

The ASTM-E514 test procedure was developed for laboratory testing to evaluate water penetration and leakage through masonry. In order to simulate site conditions, modifications to the test chamber and procedures were undertaken. These major modifications included:

- Pressure chamber located on the back side of the specimen.
- Capacity of six test specimens within the same chamber.
- Possibility of testing up to six test specimens simultaneously.
- Direct access to both sides of the test specimens during testing.
- Testing carried out under field conditions.
- Specimens permanently exposed to natural meteorological conditions.

The test pressures, rate of application of water, test duration, spray pipe and size of test wall specifications, as described in the ASTM E-514 test procedures, remained unchanged. These requirements can be summarized as follows:

- Test pressure: 500 Pa
- Rate of water application: 138 l/hr per m² of wall
- Test duration: 4 hours of continuous testing
- Spray pipe: 19 mm diameter copper pipe with a single row of 1.0 mm diameter holes spaced 25 mm. apart.
- Size of test walls: Minimum 1.11 m² exposed to the test with a minimum height or length of specimen of 1219 mm.

Figures E.1 and E.2, shown on the following page for convenience, and photographs no. 14 through 20 illustrate the test setup and its various components.

In order to create and maintain a differential air pressure of 500 Pa across the chamber, two multi-stage centrifugal blowers with a 47 l/s capacity were used in parallel (photograph no. 19). A variable transformer with a 0-110 volt output was used for air flow adjustment. A digital differential micromanometer with a 0-2000 Pa range and a 1 Pa resolution was used to measure the pressure differential across the chamber (photograph no. 20). The rate of application from the municipal water supply was measured with a 0-1134 l/hr flowmeter .

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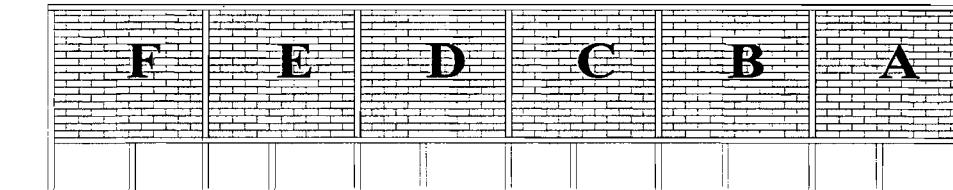


FIGURE E.1: IDENTIFICATION OF TEST PANEL ASSEMBLIES.

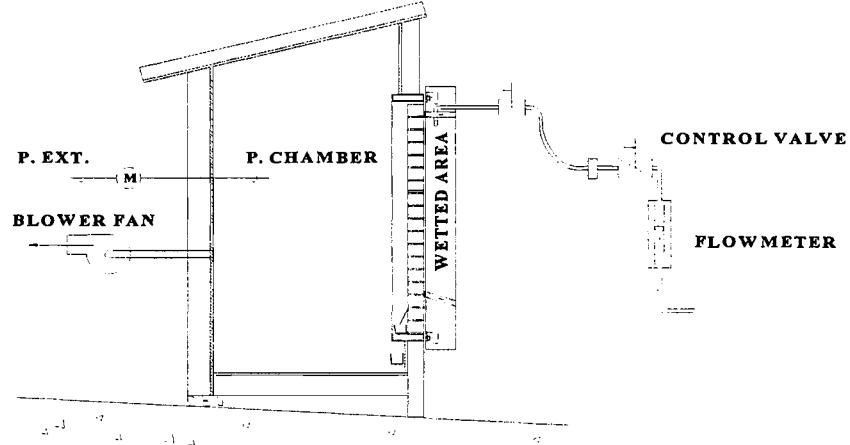


FIGURE E.2: MODIFIED ASTM E-514 TEST APPARATUS

Three interchangeable spray racks were built for simultaneous testing of up to three samples (photograph no. 17). The spray racks consisted of a 38 mm x 140 mm framing shroud with interior dimensions of 1092 mm (h) x 1041 mm (w), for a total test area of 1.13 m² (ref. figure A.3). Compressible dry closed cell foam gaskets were installed around the perimeter of the spray racks in order to create a water-tight seal between the spray rack and wall specimen. The bottom portion of the shroud and spray racks were sloped away from the wall specimen in order to shed run-off water. The shroud and spray rack assemblies fastened to the test chamber via steel angles permanently attached to the top and bottom of the racks and were bolted to threaded rods on the test chamber.

Tests were undertaken in accordance with the test procedures included in appendix B.

3.4.2 Water Uptake Tube Test Method

The testing apparatus consists of a pipe-like apparatus designed for measuring water uptake on vertical surfaces. Refer to figure E.4 and photograph no. 21. Several versions of the tube are available and vary in construction depending on supplier. Three of the most commonly available are the RILEM tube, MAT tube (Saversystems) and ProSoCo tube. The ProSoCo tube was arbitrarily chosen for use in the testing. A comparison of the three different versions can be summarized as follows:

	ProSoCo	Rilem	Mat
Water head	120 mm	98 mm	115 mm
Low pressure	276 Pa	276 Pa	414 Pa
High pressure	1172 Pa	965 Pa	1103 Pa

All three tubes are graduated in millilitres of water uptake. The ProSoCo tube is graduated from 0 to 5 ml with each graduation representing an increment of 0.5 ml. The falling head results in a variation in pressure from 1172 Pa when the tube is completely full to 276 Pa when the tube reaches the 5 ml uptake mark. These pressures correspond to the equivalent of wind speeds varying from 156 - 75 km/hr. The international union of testing and research laboratories for materials and structures or RILEM (Reunion Internationale des Laboratoires d'Essais et de Recherches sur les Matériaux et les Constructions), with headquarters in Paris, developed the RILEM no. II.4 test method for measuring the quantity of water absorbed by the surface of a masonry material over a definite period of time. Refer to appendix B for the corresponding test procedure.

At most four readings were carried out per wall specimen; two readings at mortar joints and two readings on the face of the brick unit. Refer to figure E.5 for a generalized representation of the location of the water uptake tube tests.

3.4.3 Air Infiltration Test

Air infiltration tests were undertaken with a separate air chamber designed to fit on the interior side of the wall specimen and clamped to the chamber framing for testing of individual specimens. Refer to photograph no. 22.

The air chamber was constructed of 38 mm x 89 mm wood framing and polyvinyl film. Strips of self adhesive membrane were used to ensure an air-tight assembly. A combined air flow and pressure tap adaptor was fitted to the polyvinyl film of the air chamber for purposes of measuring air leakage rate and measurement of the pressure differential across the specimen (referenced to an exterior pressure tap). The air chamber was designed with dry closed cell foam seals and a quick-release clamping system to permit repeated use and to facilitate installation. Refer to figure E.6 for a schematic of the test set-up and to appendix C for a description of the apparatus and procedure corresponding to this test method.

4.0 TEST RESULTS

As summarized by the following table, the modified ASTM E-514, water uptake tube tests were undertaken between the months of May and November 1996. Furthermore, air infiltration tests were undertaken between the months of May and June 1996. The air tests were discontinued given the insignificant difference in the results measured for uncoated vs. coated panels.

	May 1996	June 1996	July 1996	September 1996	October 1996	November 1996
Modified ASTM E-514 test	Test no.1	Test no.2	Test no.3	Test no.4	Test no.5	Test no.6
Water uptake tube test	Test no.1	Test no.2	-	Test no.3	-	-
Air Infiltration test	Test no.1	Test no.2	-	-	-	-

The test results and data for each of these tests is presented in the following sub-sections.

4.1 Modified ASTM E-514 Test

A total of six tests were undertaken on each of the wall specimens A through F. Test no. 1 was undertaken on the bare wall specimens prior to the application of the water repellents. Test results are summarized below and presented in graphical format in appendix G. Refer to appendix H for the raw data which was collected during this series of tests. Tables no. 1 through 4 summarize initial, best, worst, and average performance results obtained upon completion of this series of tests. Table no. 5 presents an estimate of the rate of change in performance and reduction to water penetration over an extended time period. Finally, table no. 6 summarizes all of the results obtained in an attempt at classifying product/panel performance.

A summary of these initial results are presented in table no. 1 as follows.

Table no. 1: Summary of Initial Performance			
Test Panel	Rate of Water Penetration (Prior to Coating) (ml/hr·m ²)	Rate of Water Penetration (After Coating) (ml/hr·m ²)	% Reduction
A	5176	310	94.0
B	11472	8	99.9
C	11477	6416	44.1
D	12265	3981	67.5
E	6068	1601	73.6
F	9063	11833	(34.0) ¹

Note 1: This value is presented as an increase in the rate of water penetration

The following is a table summarizing the best performance of each of the masonry coatings and the test during which it was obtained (marked within parenthesis).

Table no. 2: Summary of Best Performance			
Test Panel	Rate of Water Penetration (Prior to Coating) (ml/hr·m ²)	Rate of Water Penetration (After Coating) (ml/hr·m ²)	% Reduction
A	5176	272 (3rd test)	94.7
B	11472	0 (4th test)	100.0
C	11477	14 (3rd test)	99.9
D	12265	3901 (4th test)	67.5
E	6068	1601 (2nd test)	73.6
F	9063	7719 (5th test)	14.8

The following is a table summarizing the worst performance of each of the masonry coatings and the test during which it was obtained (marked within parenthesis).

Table no. 3: Summary of Worst Performance			
Test Panel	Rate of Water Penetration (Prior to Coating) (ml/hr)	Rate of Water Penetration (After Coating) (ml/hr)	% Reduction
A	5176	3169 (6th test)	38.8
B	11472	189 (6th test)	98.3
C	11477	6416 (2nd test)	44.1
D	12265	10771 (3rd test)	12.1
E	6068	2601 (6th test)	56.1
F	9063	12684 (3rd test)	(39.9) ¹

Note 1: This value is presented as an increase in the rate of water penetration

The following is a table summarizing the average performance of the five tests for each of the masonry coatings.

Table no.4: Summary of Average Performance			
Test Panel	Rate of Water Penetration (Prior to Coating) (ml/hr)	Rate of Water Penetration (After Coating) (ml/hr)	% Reduction
A	5176	1185	77.1
B	11472	82	99.3
C	11477	1827	84.1
D	12265	6188	49.5
E	6068	2145	64.6
F	9063	9952	9.8

As previously discussed, the respective rates of change in performance were also computed and are tabulated as follows.

Table no. 5: Estimated Rates of Change in Performance and Projected Reduction in Water Penetration

Item	Panel				
	A	B	C	D	E
Initial Performance (% of base panel - best fit est.)	100	100	100 ²	68	70
Performances: (% of base panel - best fit est.)					
@ 3 months following application	67.3	98.8	85.3	58.4	62.2
@ 6 months following application	34.6	97.6	70.6	48.8	54.4
Projected Performances: (% of base panel - best fit est.)					
@ 9 months following application	1.9	96.4	56.9	39.2	46.6
@ 1 year following application	-	95.2	41.2	29.6	38.8
@ 2 years following application	-	90.4	-	-	7.6
@ 3 years following application	-	85.6	-	-	-
Est. Rate of Change in Performance (% per month - 30 days)	-10.9	-0.4	-4.9	-3.2	-2.6

Note 2: This value is based on peak performance for panel "C" only.

For simplicity, a ranking system was adopted for the purpose of summarizing the results of the various criteria under consideration. A summary of this ranking is presented as follows.

Table no. 6: Performance Evaluation Following Modified ASTM E-514 Testing

Item	Panel Performance Level		
	High	Moderate	Low
Water Penetration:			
Initial Performance	A,B	D,E	C
Best Performance	A,B,C	D,E	
Worst Performance	B	E	A,C,D
Average Performance	B,C	A,E	D
Durability:	B	C,D,E	A

4.2 Water Uptake Tube Tests

A total of three tests were undertaken on each of the wall specimens A through F. Tests were undertaken on both mortar joints and the brick face of each of the panel assemblies.

Test results are summarized below and presented in graphical format in appendix I. Refer to appendix J for the raw data collected during the course of these tests.

The following table is a summary of the performance of uncoated panel assemblies, as evaluated at mortar joints and brick face of the panel assemblies.

**Table no. 7: Summary of Performance
Water Uptake Tube Tests for Uncoated Panels**

Test Location	Rate of Water Penetration at Mortar Joints (l/hr·m ²)	Rate of Water Penetration at Brick Face (l/hr·m ²)
A	240.4 (1) 44.0 (4)	41.1 (3)
B	180.2 (1) 158.1 (2)	70.5 (3) 29.9 (4)
C	718.5 (2)	23.6 (3) 14.9 (4)
D	347.3 (2)	28.7 (3) 35.2 (4)
E	646.6 (2)	40.5 (3) 86.5 (4)
F	273.0 (1)	49.1 (3) 49.7 (4)
Average	366.3	42.8

Table no. 8 summarizes the results obtained for the performance evaluation of the rate of water penetration between coated and uncoated panel assemblies as determined at mortar joints.

**Table no. 8: Summary of Performance
Water Uptake Tube Tests on Mortar Joints**

Test Location	Rate of Water Penetration (Prior to Coating) (l/hr·m ²)	Rate of Water Penetration (After Coating) (l/hr·m ²)	% Reduction
A1	240.4	81.7 - 158.1	34.1 to 66.0
B1	180.2	1.6 - 183.5	-1.8 to 99.0
B2	158.1	71.3 - 73.5	53.5 to 54.9
C2	718.5	109.8 - 225.5	68.6 to 84.7
D2	347.3	34.4 - 151.0	56.5 to 90.1
E2	646.6	2.0 - 10.8	98.3 to 99.7
F1	273.0	406.0 - 427.8	-48.7 to -56.7

The following table summarizes the results obtained for the performance evaluation of the rate of water penetration between coated and uncoated panel assemblies, as determined for tests conducted at the brick face.

**Table no. 9 : Summary of Performance
Water Uptake Tube Tests on Brick Face**

Test Location	Rate of Water Penetration (Prior to Coating) (ml/hr·m ²)	Rate of Water Penetration (After Coating) (ml/hr·m ²)	% Reduction
A3	41151	204 - 2648	93.6 to 99.5
A4	44003	204 - 2445	94.4 to 99.5
B3	70486	407 - 611	99.1 to 99.4
B4	29865	203 - 2241	92.5 to 99.3
C3	23590	611 - 2037	91.4 to 97.4
C4	14871	407 - 2648	82.2 to 97.2
D3	28727	0.00 - 20.3	99.9
D4	35242	0.00 - 20.4	99.9
E3	40540	0.00 - 40.7	99.9
E4	86519	0.00 - 5908	93.2 - 99.9
F3	49096	41762 - 46855	4.5 - 14.9
F4	49707	37484 - 44410	10.6 - 24.6

4.3 Air Infiltration Tests

A total of two tests were undertaken on each of the wall specimens A through F. Test no. 1 was undertaken prior to the application of the water repellents and test no. 2 after water repellent application. Test results are summarized below. Refer to appendix K for the raw data pertaining to these tests.

Table: no. 10: Summary of Air Infiltration Test Results	
Nominal Pressure Differential (Pa)	Air Leakage Rate (l/s·m²)
25	0.23
75	0.56
150	1.04
300	1.85

5.0 ANALYSIS OF RESULTS

A summary of the experimental data for the various tests undertaken is presented in tabular format in appendices H, J, and K. This data has also been presented in the form of curves which are included in appendices G and I of this report. These curves will be used for discussion in subsequent sections of this report. The goal of the following sections is to discuss the test results and to evaluate the performance of products, assemblies, and test methods. Given the preliminary nature of the experiments and the limited available data, comments presented in the following sections are solely used for general discussion purposes and it is not the intent of this report to draw any definite conclusions from the data. As such, the basis of the following discussions will be that of establishing possible trends and to obtain an understanding of the performance of products under evaluation and the limitations of the test methods employed.

5.1 Modified ASTM E-514 Testing

Water penetration curves for panel assemblies A through F, illustrating the relationship between accumulated water (which passed through the specimens) and elapsed time of the test, were plotted (ref. figures G.1 through G.6 of appendix G). Upon first examination of the curves, the relationship between accumulated water and elapsed time appeared to be quasi-linear after an initial transitory period, for most of the test specimens (coated and uncoated). However, this transitory period appeared to be very short for untreated panels where an almost true linear relationship was attained after approximately one half hour of testing. For panels treated with masonry coatings, this transitory period was estimated to be approximately two to three hours prior to attaining steady flow conditions, for the stated test conditions. This characteristic may be explained by an extended sample saturation time brought on by a reduced water flow rate through the masonry for treated masonry panels. In other words, more time was required to fully saturate the masonry prior to attaining steady flow conditions.

With regards to the rate of water penetration through untreated masonry panels, flow rates ranging from 5176 ml/hr to 12265 ml/hr were determined. Given the linearity of the curves in question, flowrates were determined by performing a best fit linear regression of the experimental data. The results of this exercise are also presented with the curves of appendix G.

Three groupings were identified from the data obtained from these initial tests. A group comprising panels A and E (ref. figures G.1 and G.5) exhibited a rate of water penetration of 5177 ml/hr and 6068 ml/hr, respectively. A second grouping comprising panels B, C, and D (ref. figures G.2, G.3 and G.4) exhibited rates of 11473 ml/hr, 11477 ml/hr and 12266 ml/hr, respectively; and a third grouping comprising the control panel F exhibited a water penetration rate of 9063 ml/hr (ref. figure G.6). The variation in water penetration rates for the untreated panels may be attributed to the inherent anisotropic nature of the materials and slight imperfections introduced during the assembly of the test panels.

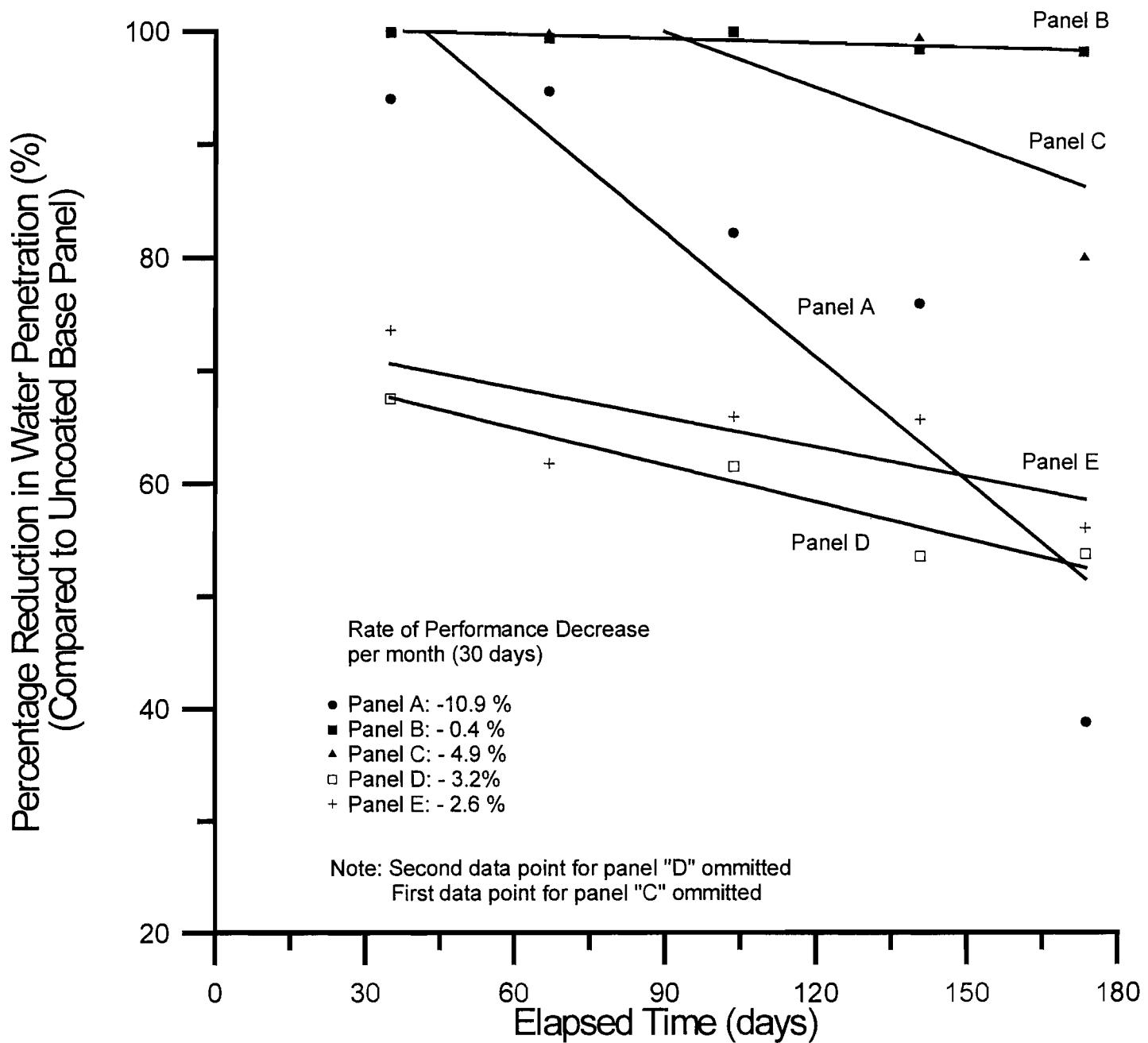
Application of the various masonry coatings to test panels A through E resulted in a dramatic decrease in the rate of water penetration for all coated panels; as was demonstrated by a series of tests which were conducted 35 days after product application (to allow for curing). Generally, a reduction of 44% to 99% from the initial water penetration rates of the uncoated panel assemblies were obtained. In addition, the control panel experienced an increase of approximately 33% in its rate of water penetration in comparison to initial test results. A summary of these initial results were presented table no. 1 of section 4.1.

As discussed in the previous sections of this report, five water penetration tests were conducted to evaluate the performance of the applied masonry coatings over a given period of time. In tables no. 2 through 4, the best, worst and average performance obtained during the series of tests for each the masonry panel assemblies was presented and compared to the panel's performance with no applied coating (ref. sec. 4.1).

A consistent drop in the performance of masonry panel assemblies was noted for the water penetration test results conducted over the seven month period. The performance of panel assemblies was plotted with respect to time and is presented in figure G.7, presented below for convenience. The gathered data may indicate a trend of decreasing performance over time. However, additional data is required to fully support this claim.

Based on the limited test data, the rate of percentage decrease in performance over the initial base performance of the uncoated panels was estimated for the various masonry coating materials. For this estimate, a best fit linear approximation to the performance data was carried out (refer to figure G.7). From these curves, the respective rates of performance decrease were computed and tabulated in table no. 5 of sec. 4.1. Note that select data points representing low performance test results were excluded from this analysis for the purpose of rendering a fair assessment. Based on these rates, the performance decrease and the projected reduction in water penetration for the assemblies were determined for periods of three, six and nine months, and one, two and three years following application of the masonry coatings.

Figure G.7:
Estimated Coating Performance vs. Time



Based on the estimated rates of performance decrease, as presented in table no. 5, several of the applied coatings may require reapplication in order to maintain a suitable level of effectiveness.

Although it was not the goal of this study to rank the products under evaluation, the summary of table no. 6 was compiled to summarize the findings of the modified E-514 series of tests for panel assemblies A through E. For simplicity, high moderate and low performance levels have been arbitrarily selected for the various criteria which were considered during this discussion.

5.2 Water Uptake Tube Tests

Concurrent with the modified E-514 water penetration tests, water uptake tube tests were conducted on the panel assemblies under evaluation. Refer to the test log in appendix H for a detailed account of the dates on which these tests were conducted.

Data representing the time required to empty the graduated 5 ml volume of the test tube was recorded for predetermined locations on the surface of panel assemblies A through F. In each case a detailed recording of the time required for the water level to attain the various graduations of the test tube was recorded. In the event that an extensive time period was required to obtain a significant drop in the tube's volume, the level of the water column was recorded with respect to time at a predetermined interval which was convenient for the rate of change in volume. The experimental data is presented in graphical format in appendix I from which the rates of water penetration were approximated.

The rate of water penetration using the water uptake tube method was evaluated for the uncoated masonry wall panel assemblies. The data retrieved from these initial tests were determined to exhibit variability similar to that noted for the modified ASTM E-514 tests. In particular, substantial differences were noted between the results obtained from complementary test positions for mortar joints and brick face of uncoated panel assemblies.

As noted in the discussion of results for the modified E-514 tests, this variability may be attributed to localized material anomalies and minor imperfections introduced within the test panels during assembly. This phenomena was noticeably more pronounced for the water uptake tube tests given the highly localized nature of the test. At some of the test locations, the volume of the uptake tube was emptied instantaneously due to voids within mortar joints or through the seal between the uptake tube and the masonry surface. In these particular cases the results were discarded.

Table no. 7 summarizes the rates of water penetration obtained from water uptake tube tests for uncoated masonry wall assemblies at mortar joints and brick face locations. The location point at which the measurement was obtained is noted within parenthesis. In comparison, the rate of water penetration obtained across masonry joints exceeded that through the brick face locations by a factor of 5 to 30 (approximately), excluding high and low values.

As presented in table no. 7, average water penetration rates of 366.6 l/hr m^2 and 42.8 l hr m^2 were determined for uncoated panel assemblies at mortar joint locations and brick face locations, respectively.

A summary of the test data for coated and uncoated panel assemblies was presented in tables no. 8 and no. 9 and has been expressed as a flowrate per unit area. Given the variability in the results and the limited test data for this particular series of tests, change in performance is presented as a range expressing the net improvement in comparison to the base or uncoated panel assembly.

With regards to the reduction in the rate of water penetration across the panel assemblies at the mortar joints, reductions in the order of 34.1% to 99.7% in comparison to the uncoated or base panel assembly were obtained. For brick face locations, reductions in the order of 91.4% to 99.9% were obtained, in which the panel assemblies (at the brick face) were rendered almost totally impervious (refer to table no. 9).

A reduction in the rate of water penetration in the order of 4.5% to 24.6% was also observed at the brick face for the control panel F. In comparison, an increase of approximately 49% to 57% was observed for the rate of water penetration in the control panel at mortar joints. This variation may be attributed to the condition of the control panel prior to the test. Factors including the degree of saturation for the uncoated masonry of the control panel and other climatic factors may have impacted on the results of the experiments.

The limited data presented in this part of the discussion would indicate that water penetration test results obtained through the water uptake tube method are highly influenced by the location at which the test is conducted. Given the significant differences which were obtained between measurements obtained at mortar joints and the face of the brick, it was clear that considerably more data would be required to establish the actual performance of masonry coatings on a masonry substrate utilizing this method. As such, an evaluation of individual product performance cannot be undertaken. However, the available data indicates that as a whole, all of the products exhibited very high levels of water repellency.

With regards to changes in performance over time, four of seven water uptake tube tests conducted at mortar joints indicated a decrease in water repellency over time (ref. figure I.1 through I.7). In comparison, eight of twelve tests conducted at the brick faces demonstrated a decrease in repellency over time (ref. figures I.8 through E.19). Given the limited available data, no generalization can be made regarding the performance of repellents over an extended period, based on the water uptake tube method.

5.3 Air Infiltration Testing

The panel assemblies were also subjected to air infiltration tests as part of the series of evaluations conducted on the panel assemblies. As discussed in section 3.4.3 of this report, air infiltration tests were conducted on each of the panel assemblies prior to and following the application of masonry coatings.

The results for the air infiltration tests are summarized in the table below. The experimental data obtained prior to and following the application of the masonry coatings indicated no significant change in performance for any of the panel assemblies. As such, it was concluded that the application of masonry coatings had no impact on the air flow characteristics of the panel assemblies. In addition, very similar leakage characteristics were obtained for all panel assemblies (including coated assemblies) at the various differential test pressures. The average leakage characteristics obtained for the masonry panels at the stated pressure differentials are summarized in table no. 10 of sect. 4.3.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Several test methods were utilized over a period of seven months for the purpose of evaluating the change in performance brought on by the application of coatings on seven masonry panels. The results and analysis of such a study, presented in previous sections of this report, have indicated substantial improvements in the resistance to water penetration upon application of commercially available masonry coatings. This change in performance was primarily evaluated through the use of a water uptake tube method and by ASTM E-514 test method; adapted for the requirements of this particular study.

Although these improvements in water repellency were generally confirmed by these two test methods, limitations were noted for each of the methods. Several factors were identified which could influence or bias test results.

6.1 Modified ASTM E-514 Test Method

With regards to the modified E-514 test, slight, normally occurring imperfections in the wall assembly, including small openings in the mortar to brick interface contributed to its overall leakage rating. The importance of these small openings at the given test pressure of 500 Pa cannot be neglected as significant amounts of water may easily be transported through the presence of these small conduits through the masonry. It is clear that even the presence of a small opening in an otherwise impervious sheet

material will result in significant amounts of water being transported across the material at high pressure differentials . Likewise, a very effective masonry water repellent would have little impact on minor openings at similar pressures.

Given this, it becomes evident that the evaluation of the resistance to water penetration for a masonry panel (or any other assembly for that matter) with this method will require a larger sample population to better evaluate the effect of imperfections of the assembly on the test results. Otherwise, an evaluation based on the modified E-514 method would be more representative of a combined assembly performance (i.e. masonry & water repellent) rather than the performance of the repellent itself.

6.2 Water Uptake Tube Test Method

In comparison to the modified ASTM E-514 method, the water uptake tube method for the evaluation of water repellency is also limited. By very nature of this particular test method, results obtained by the water uptake tube method are representative for a highly localized area and are very susceptible to surface imperfections. This is especially important at points of material transition, as was noted at mortar joints in the brick panel assemblies. Therefore, it is our opinion that an accurate assessment of a material's water repellency or resistance to water penetration based on this method would require a significant number of tests distributed over a large surface.

Barring local material or assembly imperfections, the evaluation of a masonry coatings by the water uptake method should in theory be a better gauge for a comparative evaluation of coating performance (as opposed to that of the assembly). This is supported by the preliminary data in which all coating materials exhibited high water repellency characteristics, as evaluated for the brick face of the masonry. These same coatings, evaluated by the modified ASTM E-514 procedure, produced significantly different results.

The modified ASTM E-514 test data may have also revealed a trend indicating an increase in the rate of water penetration over time in comparison to results obtained following the initial application of the masonry coating products. As mentioned earlier

in this report, this phenomena may be due to product deterioration which would necessitate its reapplication after a given time interval. Additional investigation is required to evaluate this phenomena. It is recommended that the specimens be retested every year, on a reduced frequency basis, for a period of at least 5 years to obtain performance information for extended exposure. Given the difficulties encountered with the current test methods, alternate methods could be considered.

6.3 Air Infiltration Test

With regards to the air leakage characteristics of the wall assembly, the preliminary test data indicated no significant improvement in a masonry wall's performance as an air barrier. As such, the evaluation of the panel assemblies' air leakage characteristics was terminated.

Although the resistance to water penetration is an important criteria in the selection of water repellent, consideration to vapour diffusion performance is also an important performance characteristic which must be considered prior to the selection of a water repellent.

The study of vapour diffusion through masonry panel assemblies coated with water repellents is currently being evaluated as a separate mandate.

Project no.: RD-0100-A/B

APPENDIX A: TEST CHAMBER DESIGN CRITERIA

Sample size: As per ASTM E-514, a minimum of 1.1 m² of wall shall be exposed to testing with a minimum height or length of the specimen measuring four feet.

Air pressure: As per ASTM E-514, the test chamber shall be able to maintain a minimum 500 Pa. differential air pressure for a period of at least four hours.

Exterior exposure: The test chamber should enable the samples to remain exposed to natural meteorological conditions for extended periods of time with a southern exposure. The back side of the samples should remain sheltered from these conditions (i.e. water, snow, light etc...).

Handling of samples: The necessity of handling and transporting the samples after erection should be avoided in order to reduce the risks of introducing cracks and stresses.

Access to wall samples: Both sides of the test samples should be easily accessible for observation and testing purposes.

Water collection: Each sample required an individual water collection system in order to enable the recuperation and measurement of water infiltrating through each sample during testing.

Flexibility: The test chamber should be versatile and permit the possibility of installing and displacing different testing accessories on both sides of the samples.

Project no.: RD-0100-A/B

- Working area:* There should be sufficient room on the inside and outside of the chamber to allow the technicians to carry out their work. The interior of the chamber should comprise facilities (i.e. lighting, heating, electrical sources etc...) and a suitable working environment so as to permit uninterrupted testing by a technician for a minimum four hour period.
- Stability:* The test chamber shall be stable enough to withstand wind and snow loads.

Project no.: RD-0100-A/B

APPENDIX B: PROCEDURE FOR MODIFIED ASTM E-514 TEST METHOD

Project no.: RD-0100-A/B

Water supply:

- Install spray shroud and rack assemblies on wall specimens
- Adjust rate of water application corresponding to a flow rate of 138 l/hr wall per m² of wall.
- Start applying water only once the test is ready to begin.

Air supply:

- Connect digital micromanometer inside the chamber and connect exterior pressure reference to pressure tap on the front side of the chamber.
- Install the variable transformer inside the chamber and connect to the centrifugal blower.
- Close and clamp the access door air tight.
- Adjust and maintain the differential air pressure across the chamber to 500 Pa.

Testing:

- Once the rate of water application has been adjusted and the test pressure reached, begin tracking test duration with a digital stop watch.
- Maintain test conditions for 4 hours.

Test readings:

- Place a water recipient below each of the water collection systems of the specimens being tested. (photograph no. 15)
- At 30 minute intervals, measure the volume of collected water with a graduated cylinder and record on data sheets (8 readings per test, per specimen, photograph no. 16).
- Ensure no interruption of the water being collected.
- Empty the measured water into the drainage outlet after each reading.

Project no.: RD-0100-A/B

Panel diagrams:

- Record all observations on panel diagrams.
- Record first time of dampness and first visible water on the back of the specimen.
- At 30 minute intervals, indicate areas of dampness, visible water and running streams.

Project no.: RD-0100-A/B

APPENDIX C: PROCEDURE FOR WATER UPTAKE TUBE TEST METHOD

Project no.: RD-0100-A/B

- Affix the testing apparatus to the test area by interposing a tape of putty between the flat, circular brim of the pipe and the surface of the masonry material.
- Exert manual pressure on the cylinder in order to ensure proper adhesion.
- Add water through the upper, open end of the pipe until the column reaches the 0 graduation mark.
- Read the quantity of water absorbed by the material during a given period of time directly from the graduated tube.

Project no.: RD-0100-A/B

APPENDIX D: PROCEDURE FOR AIR INFILTRATION TEST METHOD

The testing apparatus utilized for purposes of air testing comprised the following components:

- Multi-stage centrifugal blower with a 47 l/s capacity.
- Variable transformer with a 0-110 volt output for air flow adjustment.
- Orifice flow meters.
- Digital differential micromanometer with a 0-2000 Pa range and a 1 Pa resolution.

The test procedures for measuring air leakage across each specimen are as follows:

- Install and clamp air chamber to test specimen.
- Connect digital micromanometer to exterior pressure tap and air chamber pressure adaptor.
- Connect Mini-Lab blower assembly to air chamber air flow adaptor.
- Adjust and maintain the differential air pressure across the specimen to the specified testing pressure.
- Record the air flow rate from the flow meter when pressures have stabilized.
- Repeat tests at 25 Pa, 75 Pa, 150 Pa and 300 Pa pressure differential.

Project no.: RD-0100-A/B

APPENDIX E: FIGURES

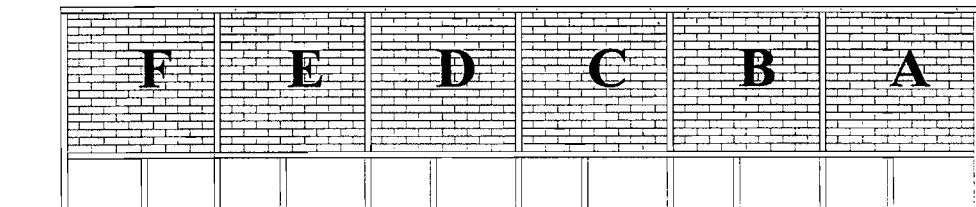


FIGURE E.1: IDENTIFICATION OF TEST PANEL ASSEMBLIES.

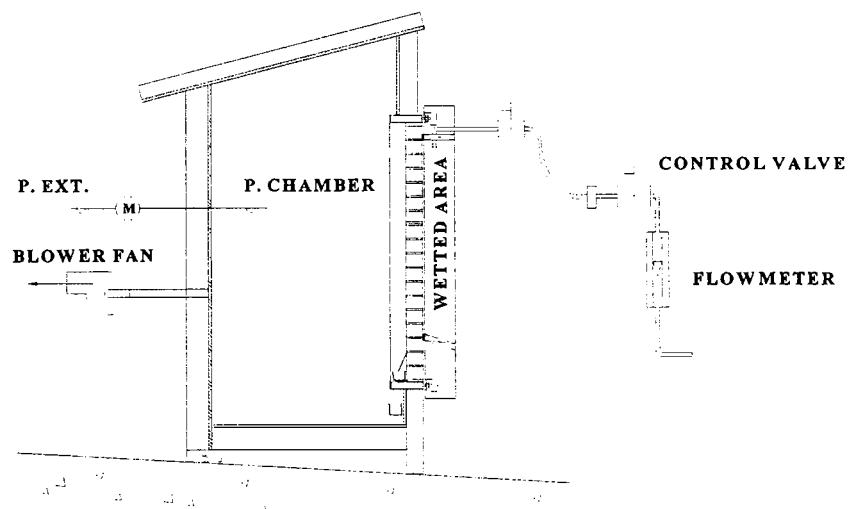


FIGURE E.2: MODIFIED ASTM E-514 TEST APPARATUS

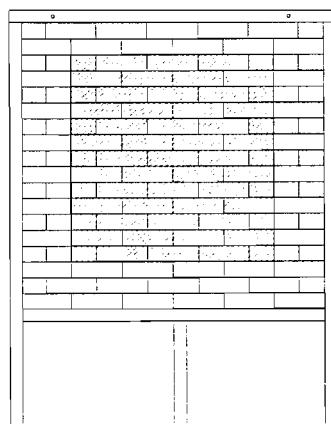


FIGURE E.3: TEST AREA FOR WATER PENETRATION TEST

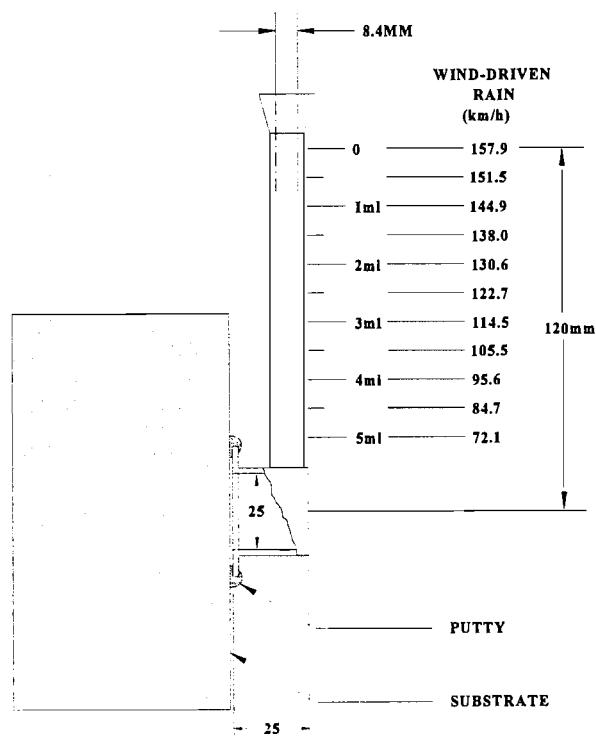


FIGURE E.4:
WATER UPTAKE TUBE TEST APPARATUS

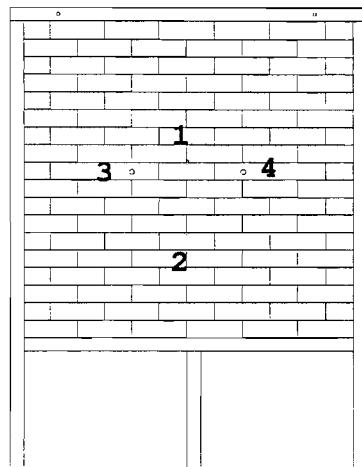


FIGURE E.5:
IDENTIFICATION OF WATER UPTAKE TEST LOCATIONS

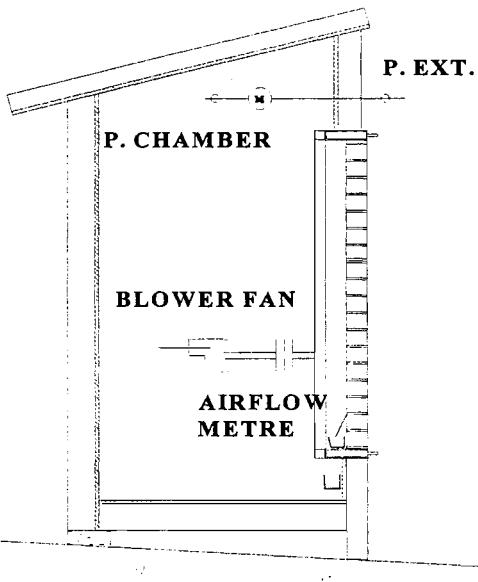
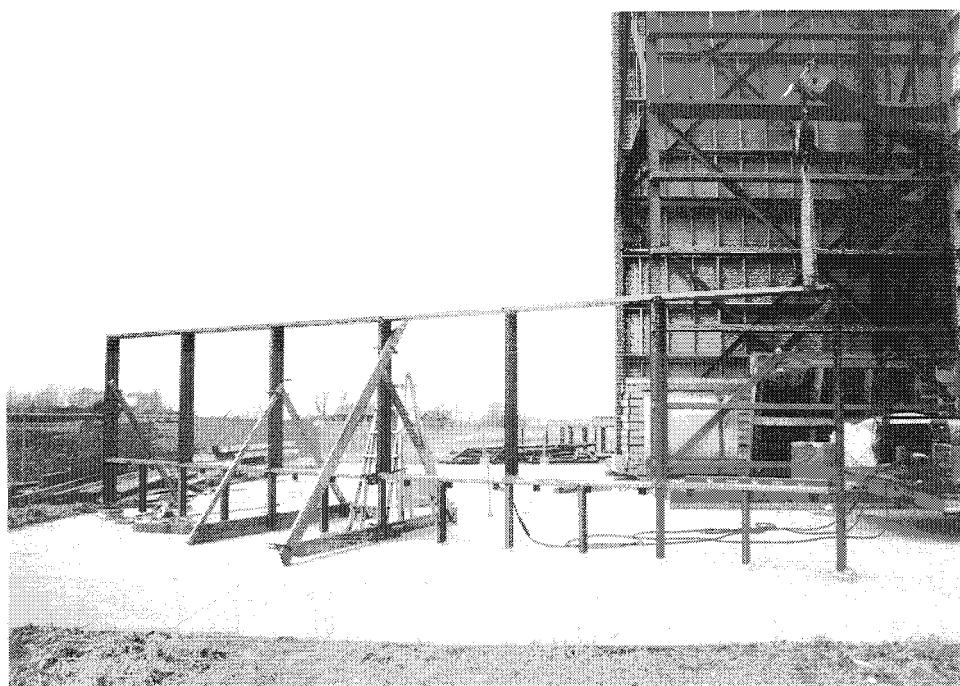


FIGURE E.6: AIR INFILTRATION TEST APPARATUS

Project no.: RD-0100-A/B

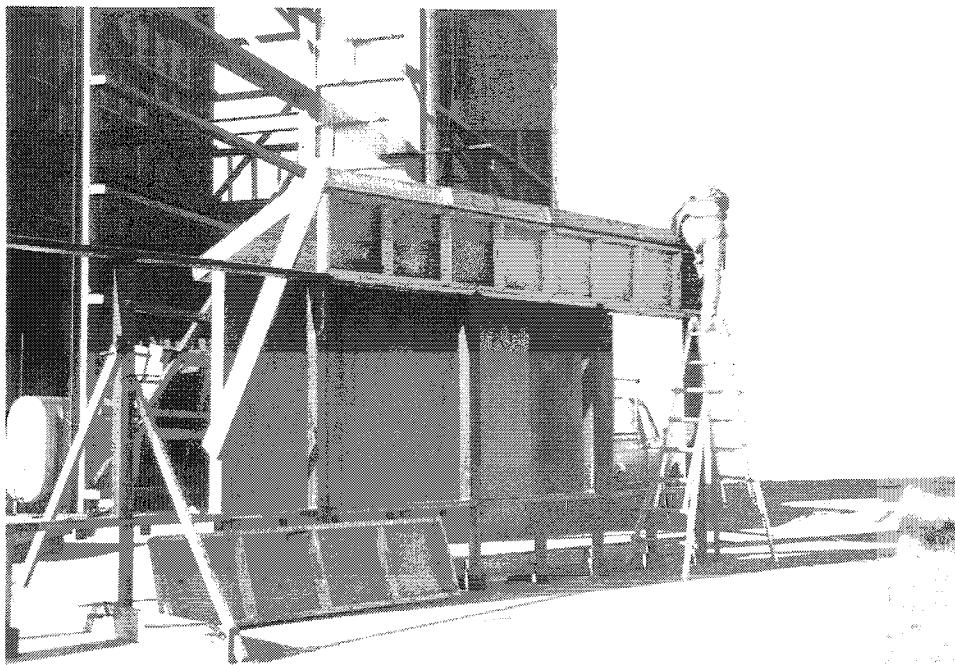
APPENDIX F: PHOTOGRAPHS



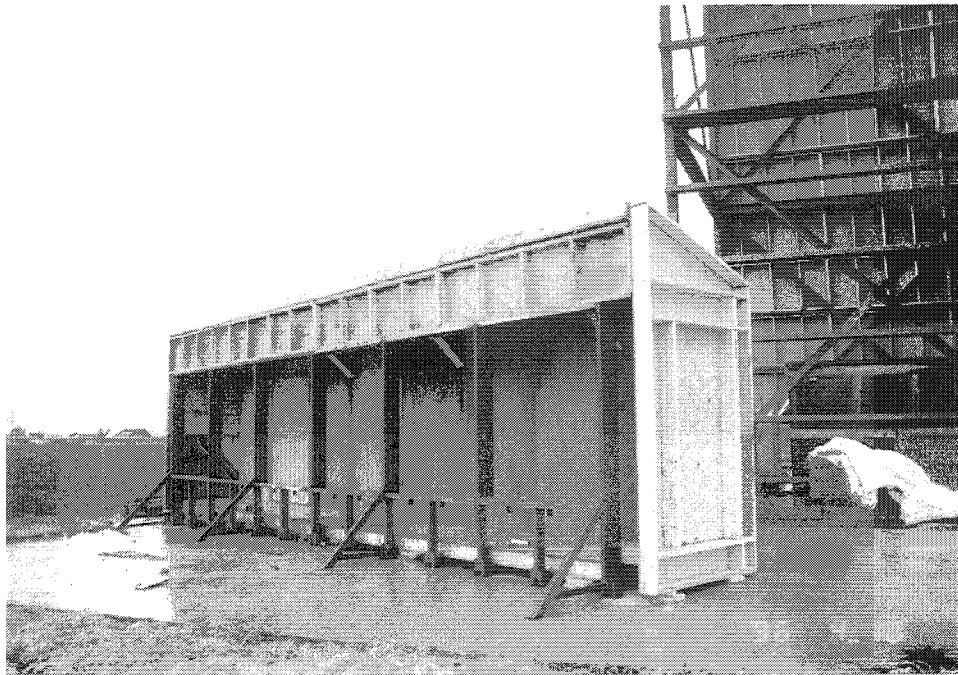
Photograph no.1: Erection of steel framing for the six wall specimens.



Photograph no.2: Erection of steel framing for the six wall specimens.



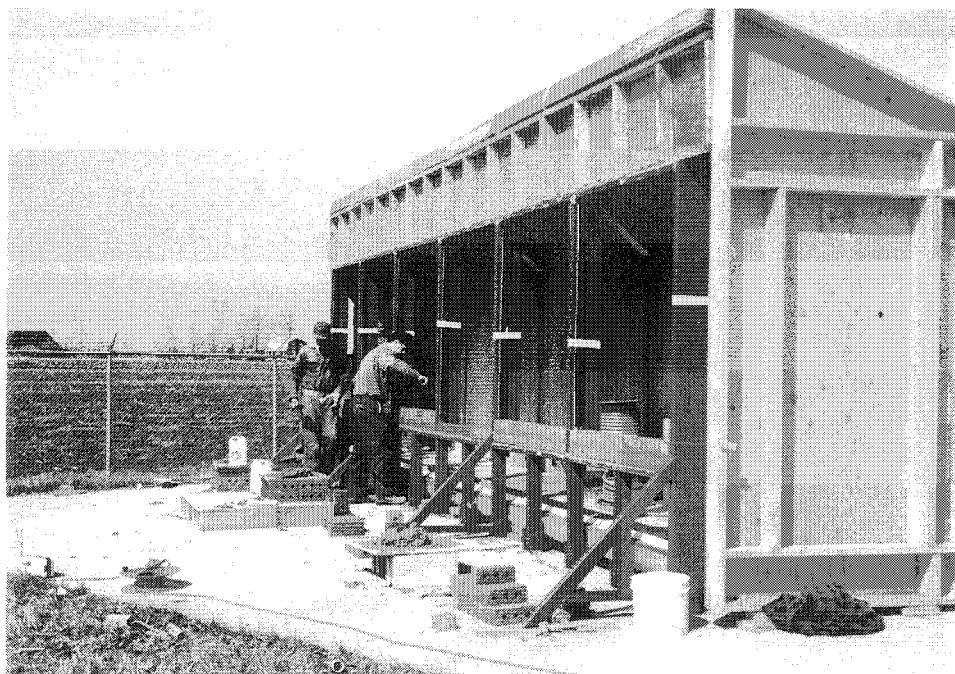
Photograph no.3: Erection of prefabricated chamber panels.



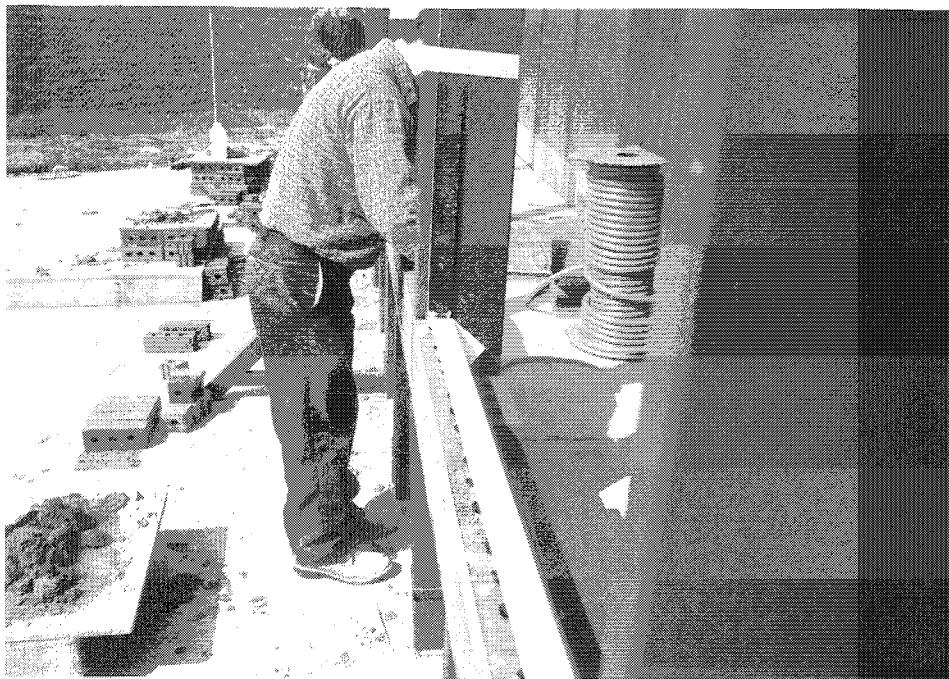
Photograph no.4: Test chamber prior to erection of wall specimens.



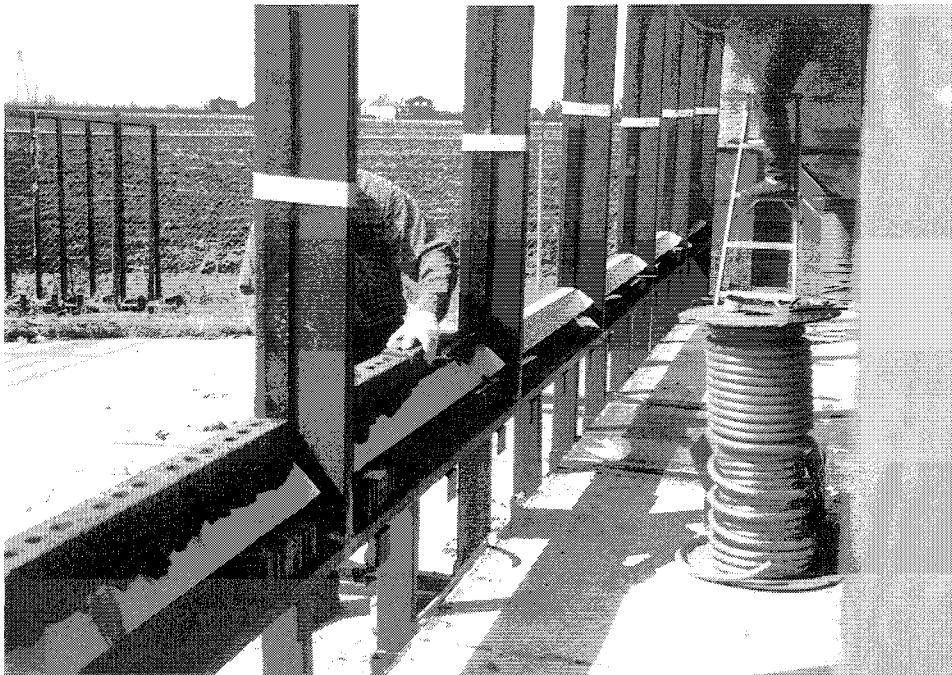
Photograph no.5: Erection and allignment of first two brick rows.



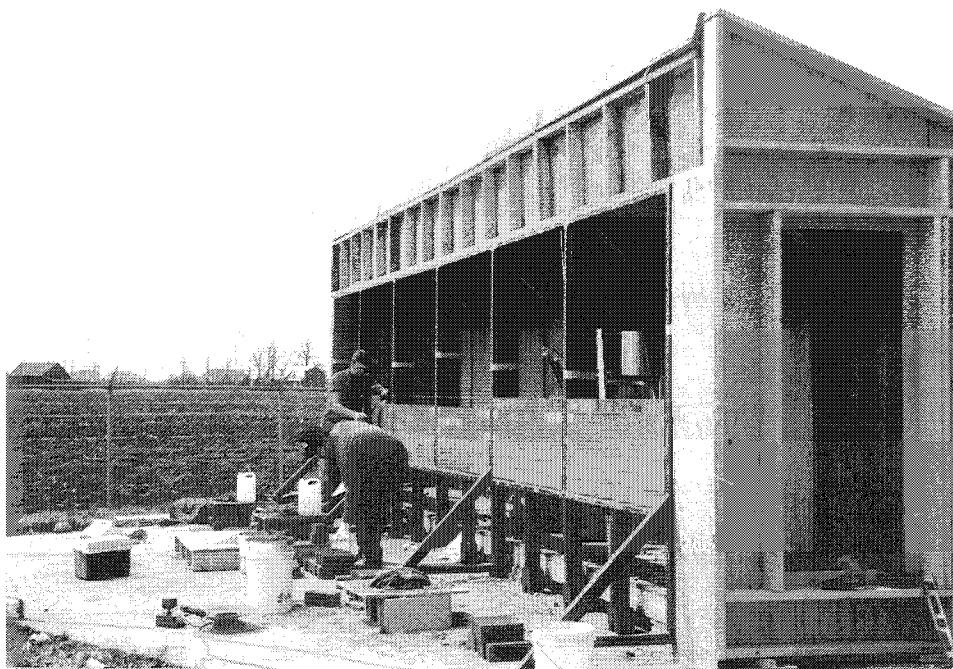
Photograph no.6: Erection and allignment of first two brick rows.



Photograph no.7: Installation of metal flashing for recuperation of run-off water.



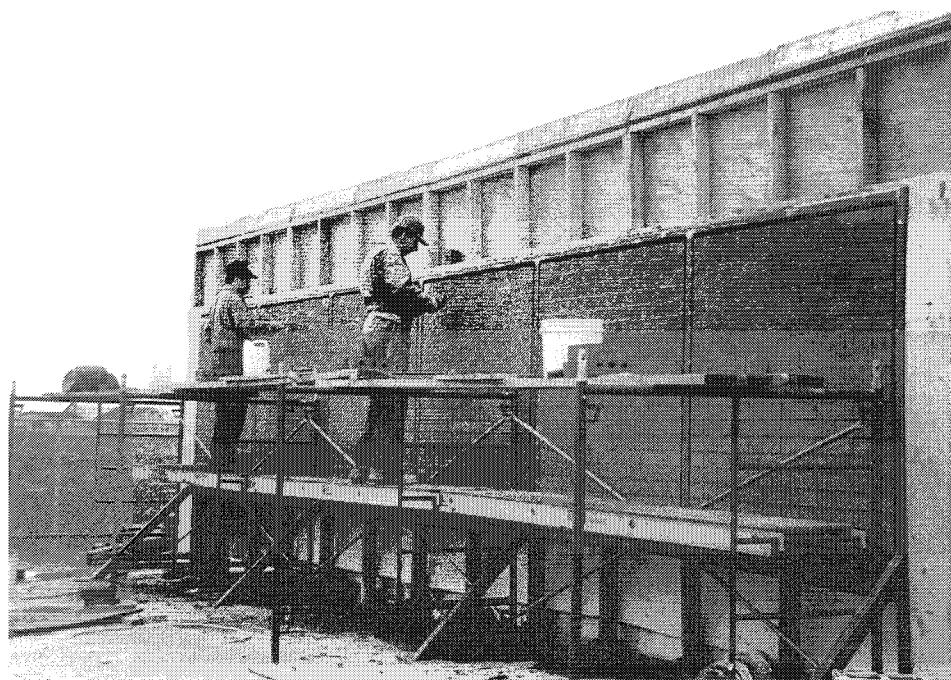
Photograph no.8: Installation of metal flashing for recuperation of run-off water.



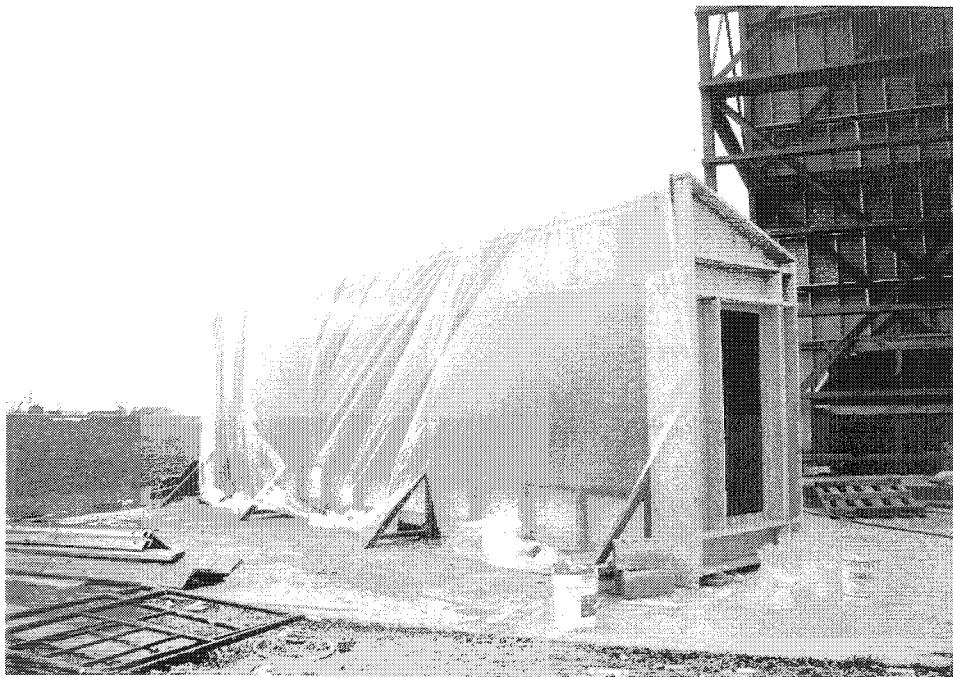
Photograph no.9: Erection of wall specimens.



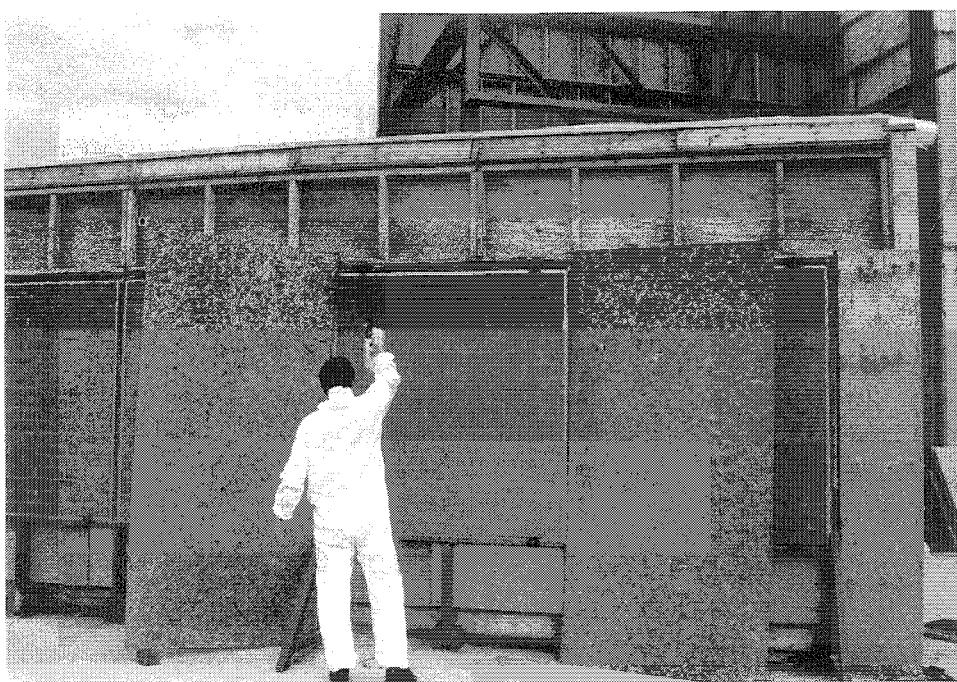
Photograph no.10: Erection of wall specimens.



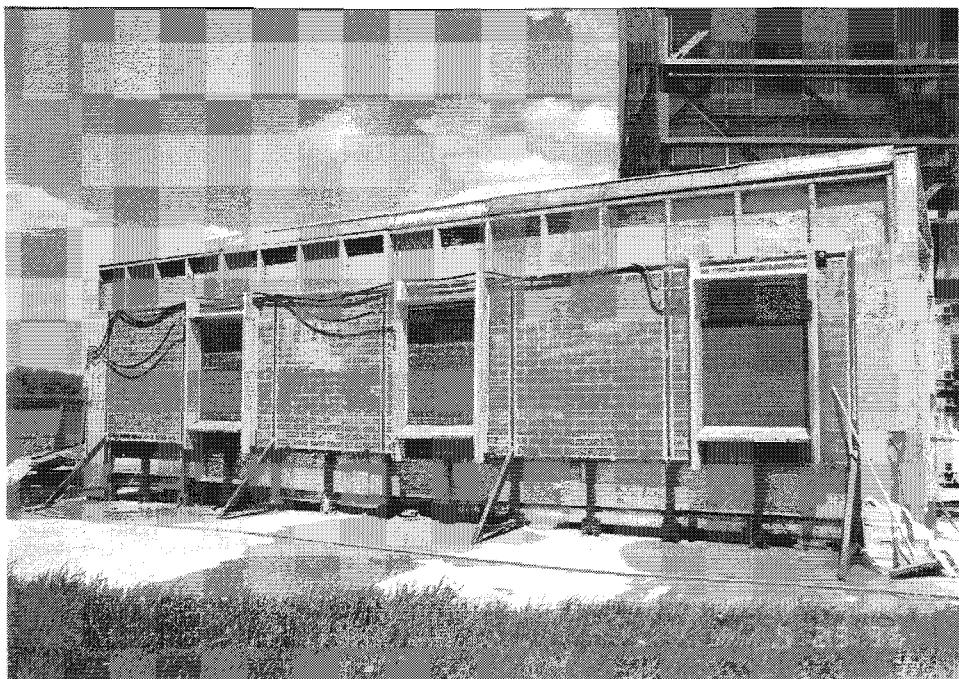
Photograph no.11: Tooling of mortar joints.



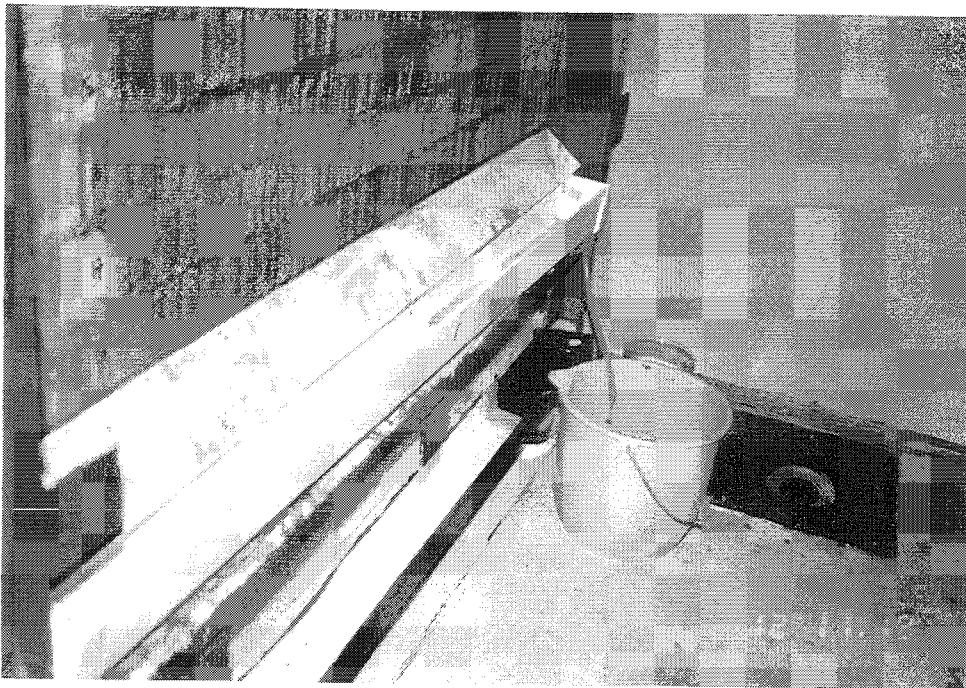
Photograph no.12: Curing of wall specimens.



Photograph no.13: Application of water repellent.



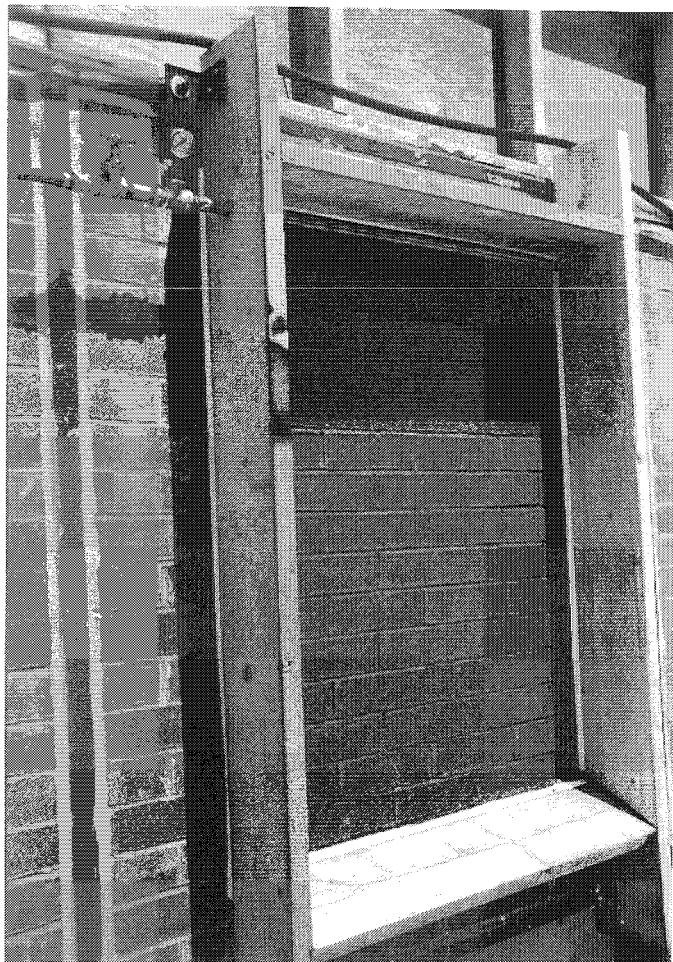
Photograph no.14: Modified ASTM E-514 test in progress (test no. 1).



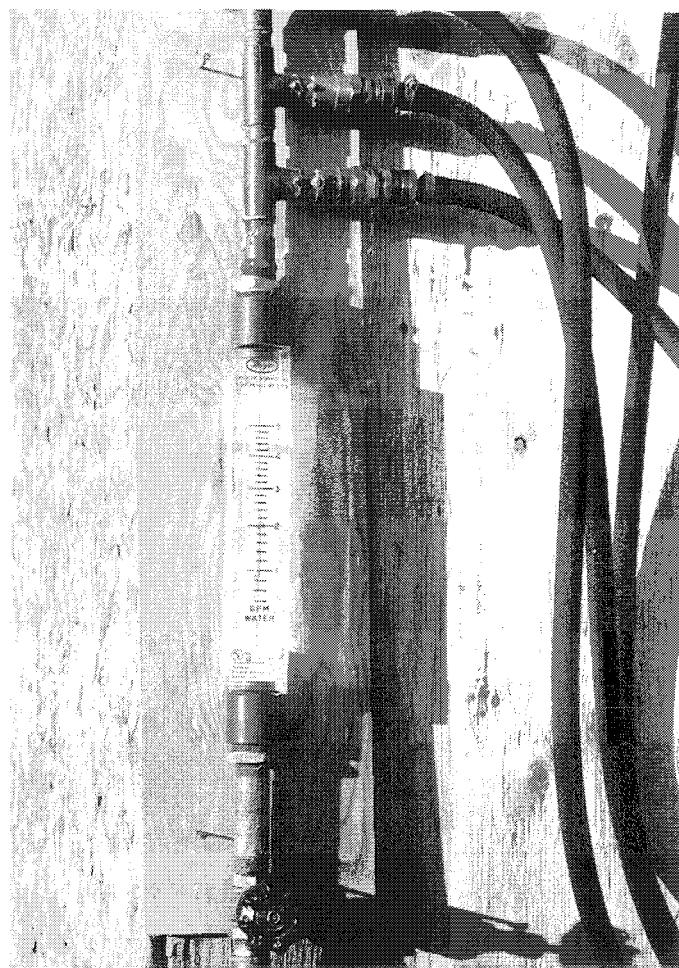
Photograph no.15: Water recuperation system.



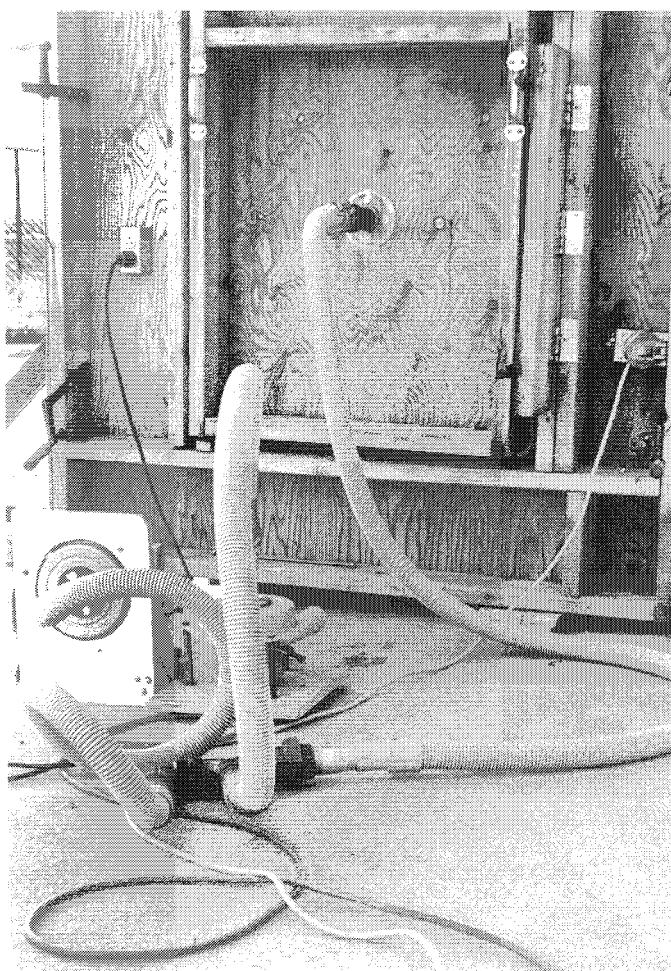
Photograph no.16: Measurement of recuperated water.



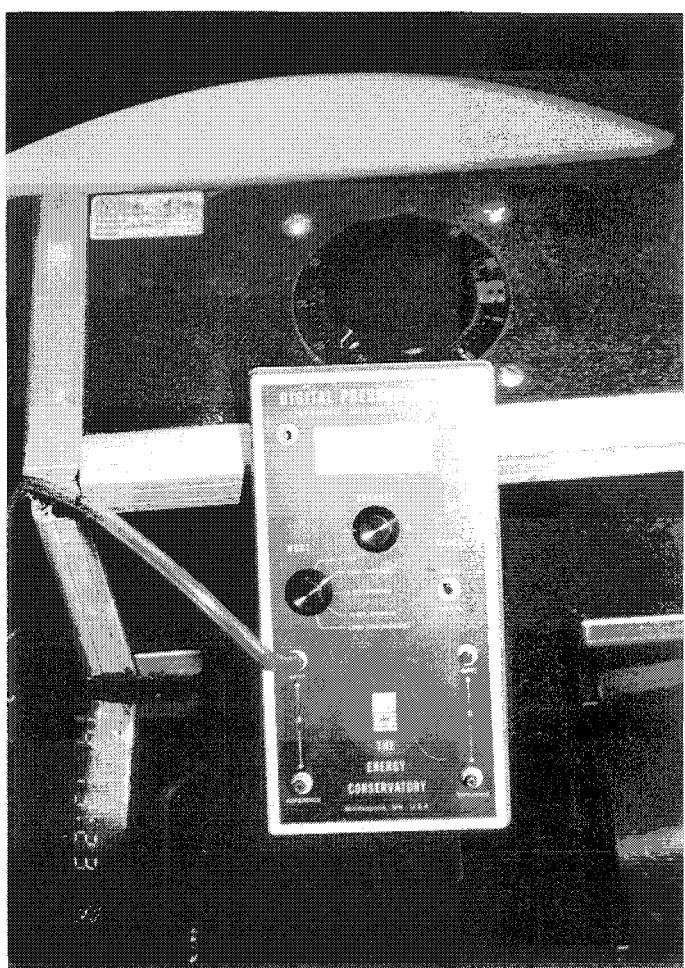
Photograph no. 17:
Spray rack for modified
ASTM E-514 test.



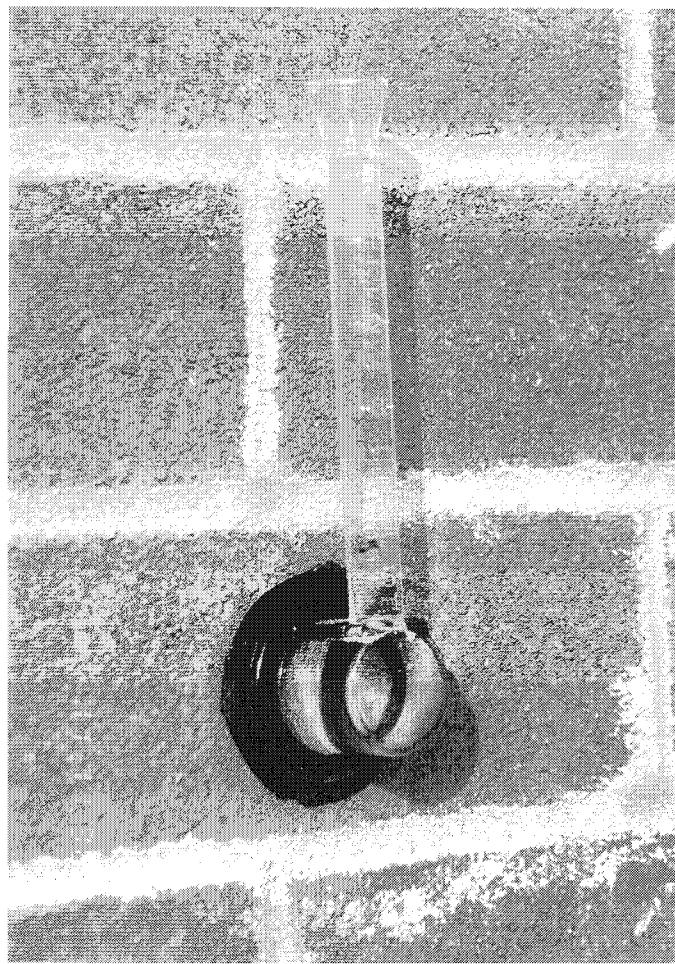
Photograph no.18:
Flow meter for modified
ASTM E-514 test.



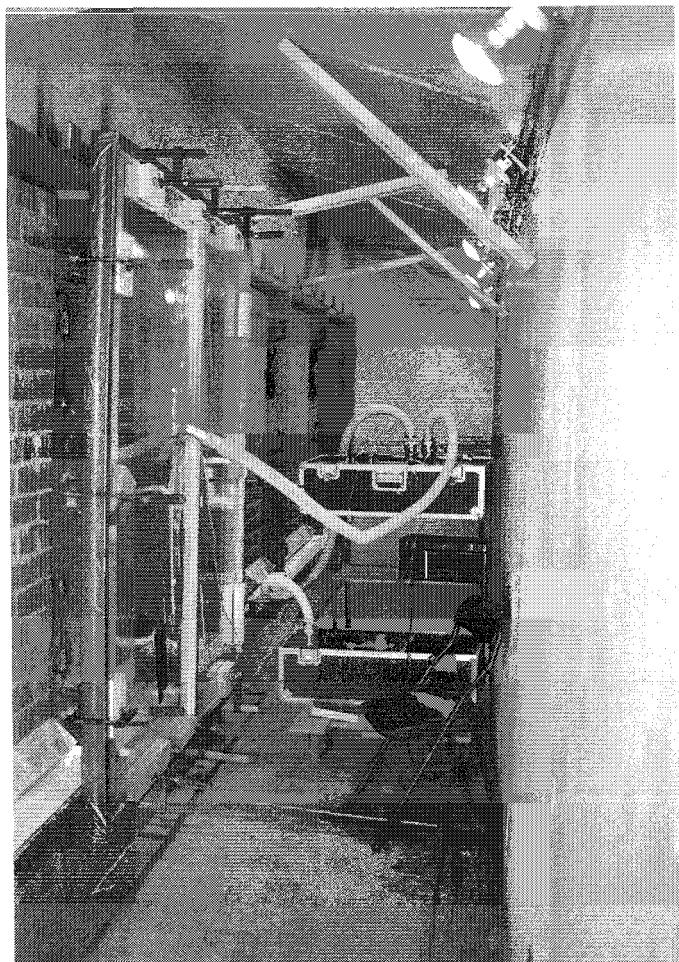
Photograph no. 19:
Blower set-up for modified
ASTM E-514 test.



Photograph no.20:
Digital differential
micromanometer.



Photograph no.21: ProSoCo tube.



Photograph no.22: Air test set-up.

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APPENDIX G: MODIFIED ASTM E-514 TEST CURVES

Figure G.1:
Modified ASTM E-514 Test
Panel A

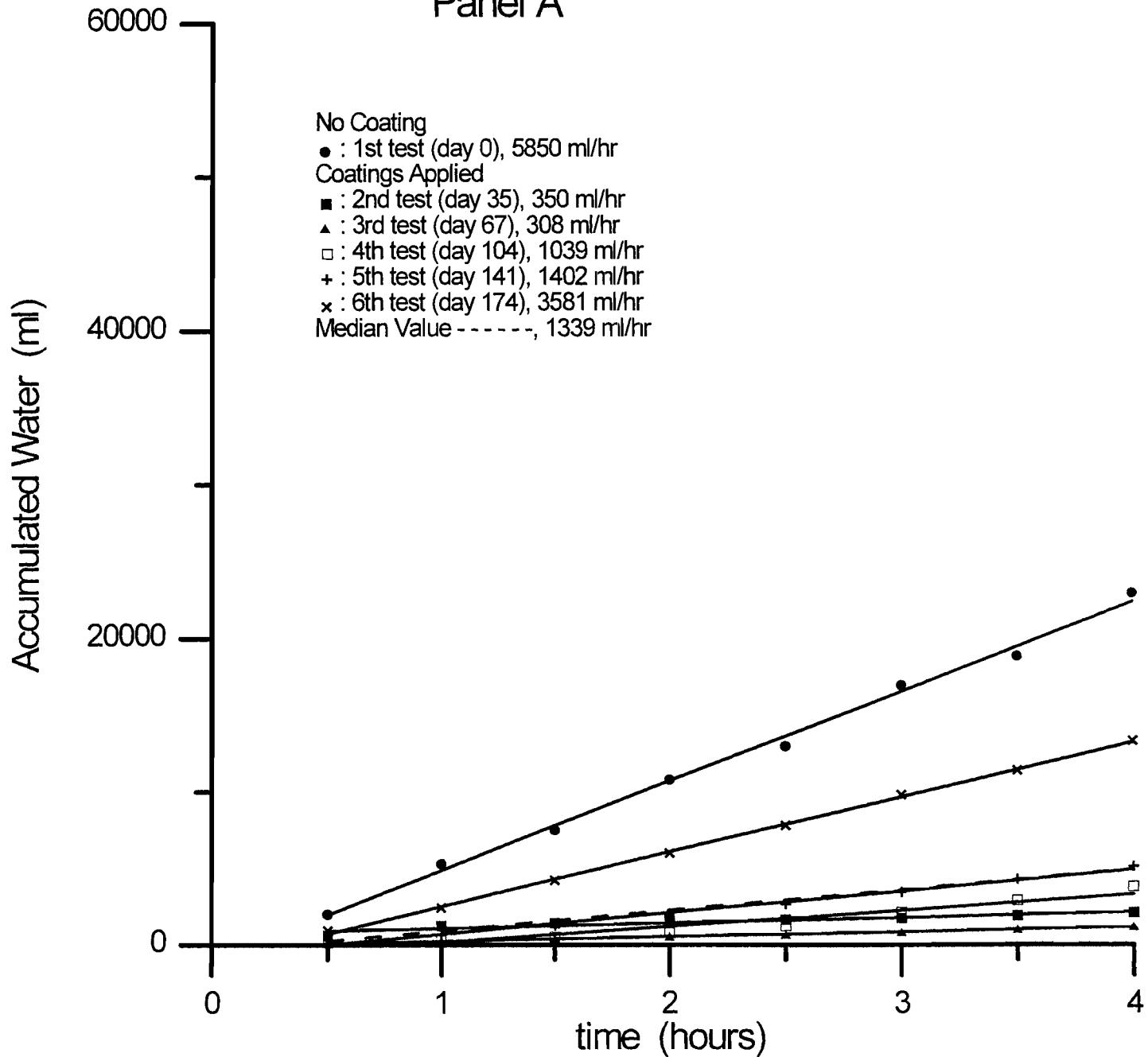


Figure G.2:
Modified ASTM E-514 Test
Panel B

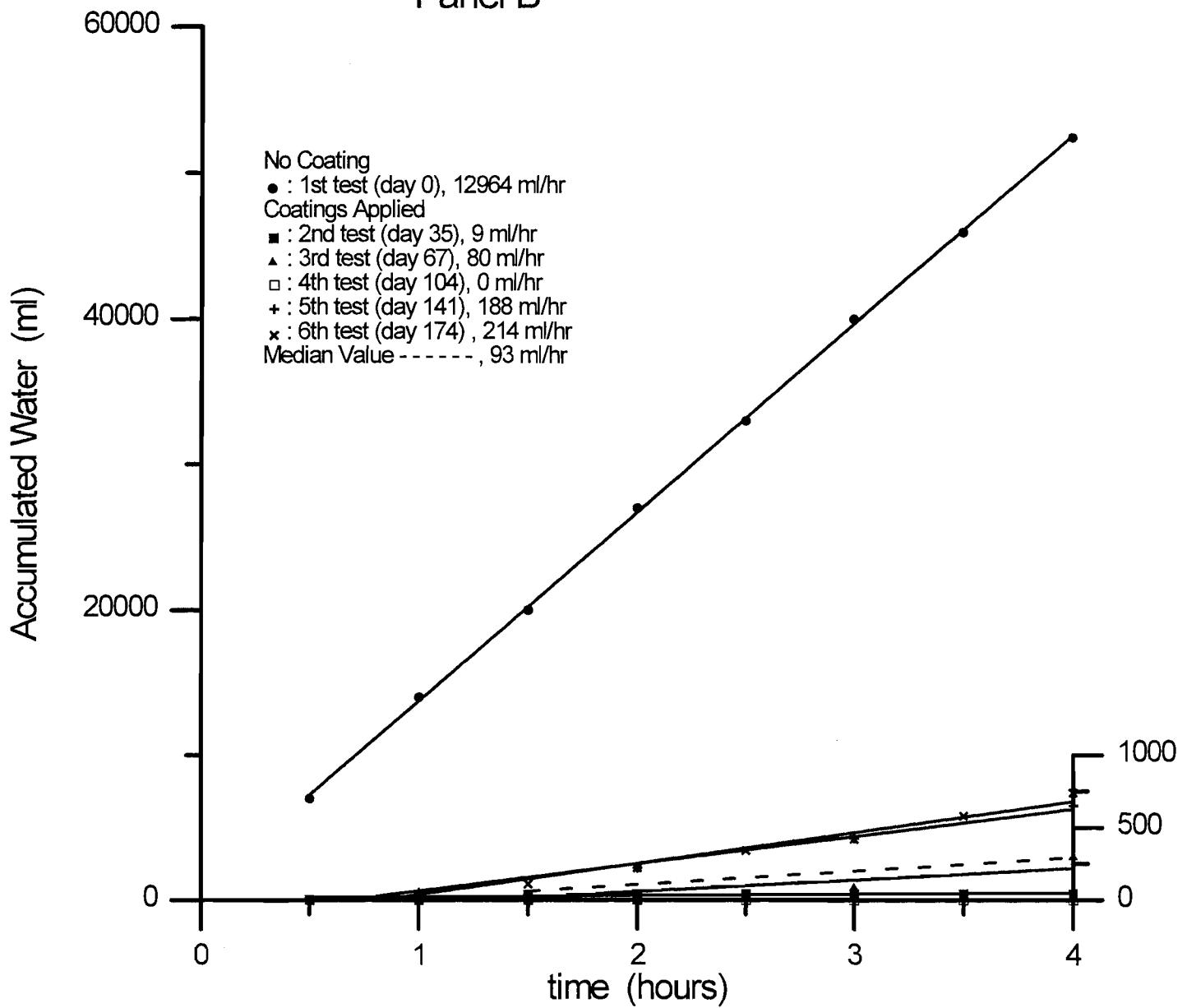


Figure G.3:
Modified ASTM E-514 Test
Panel C

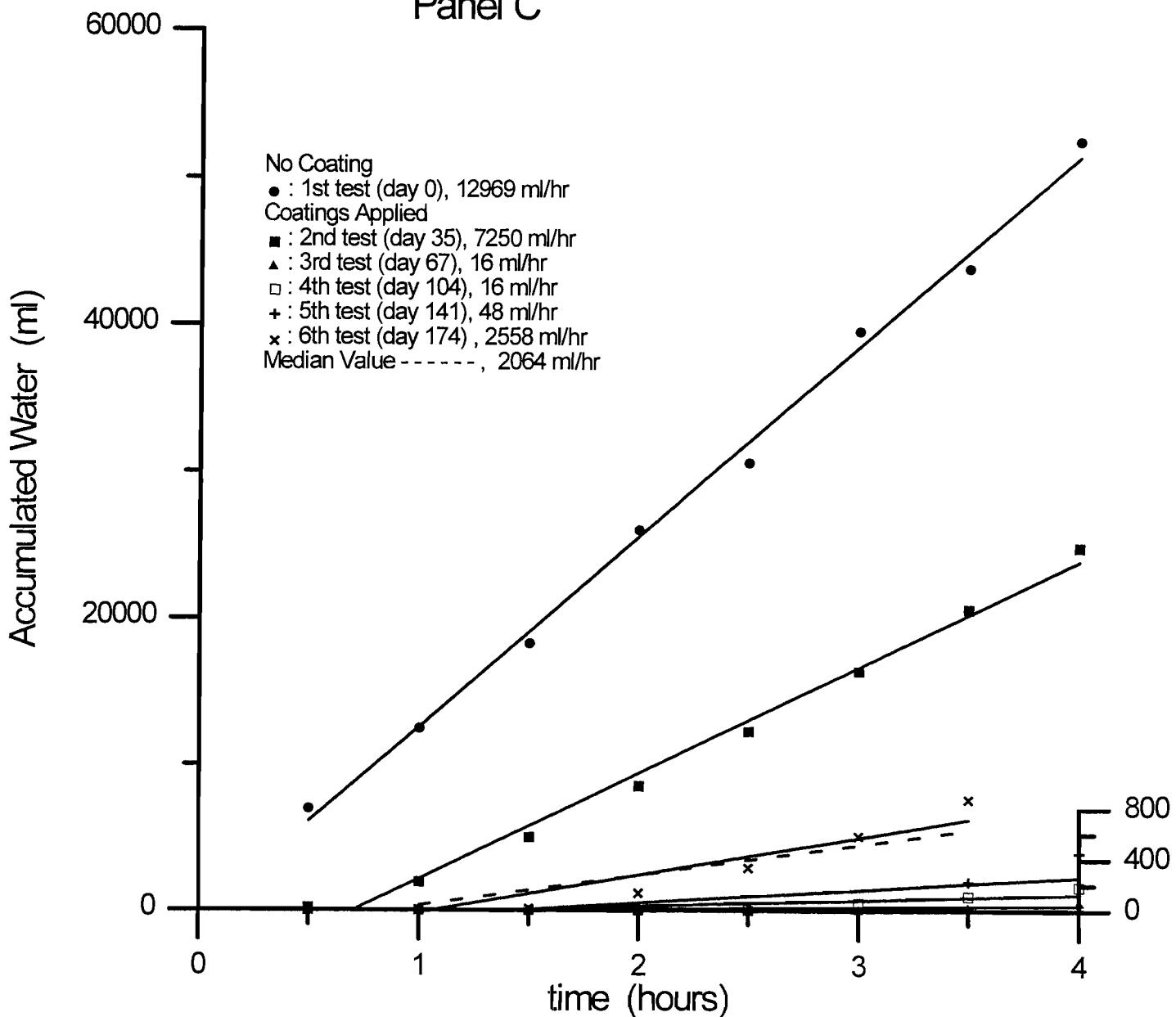


Figure G.4:
Modified ASTM E-514 Test
Panel D

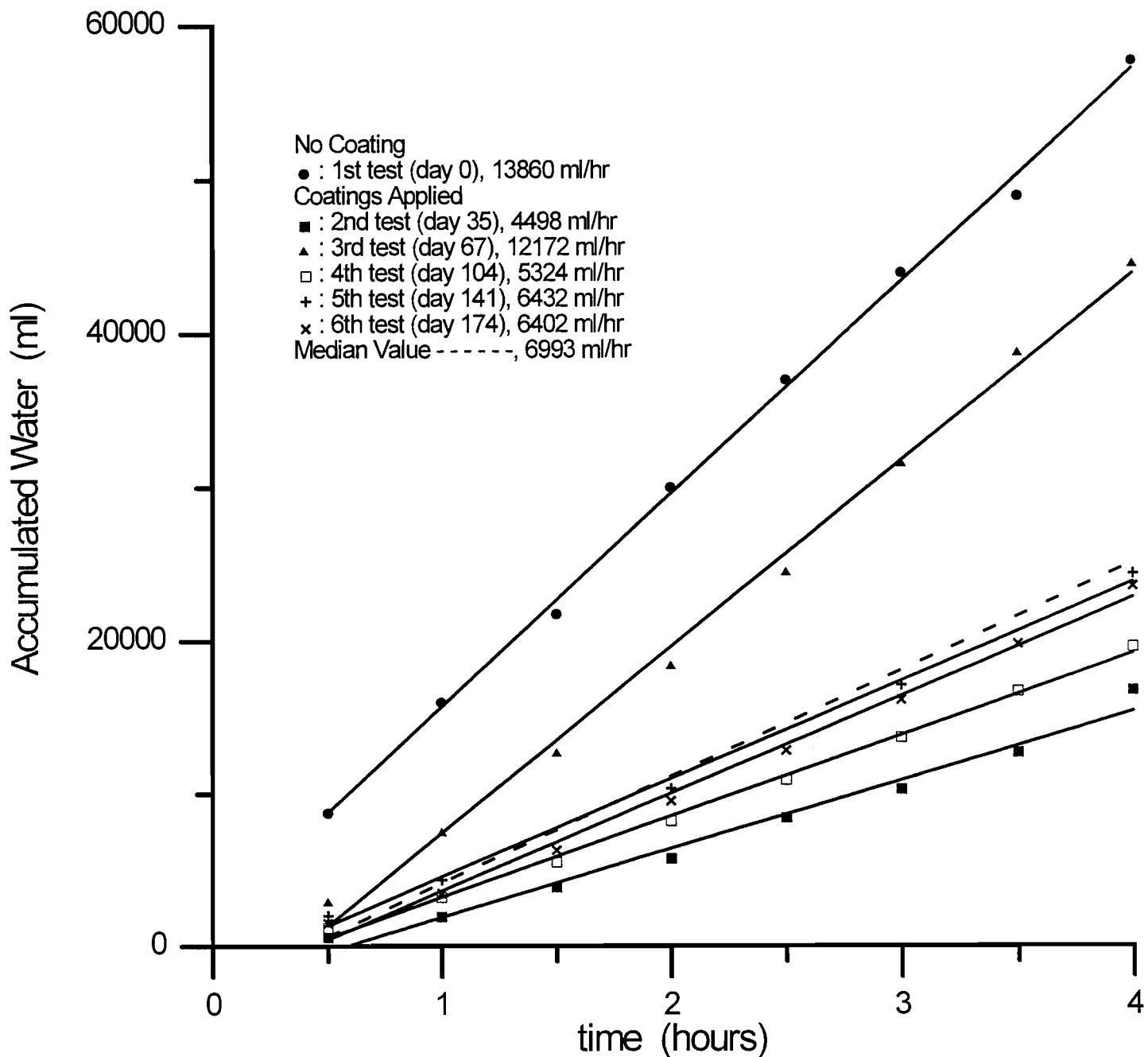


Figure G.5:
Modified ASTM E-514 Test
Panel E

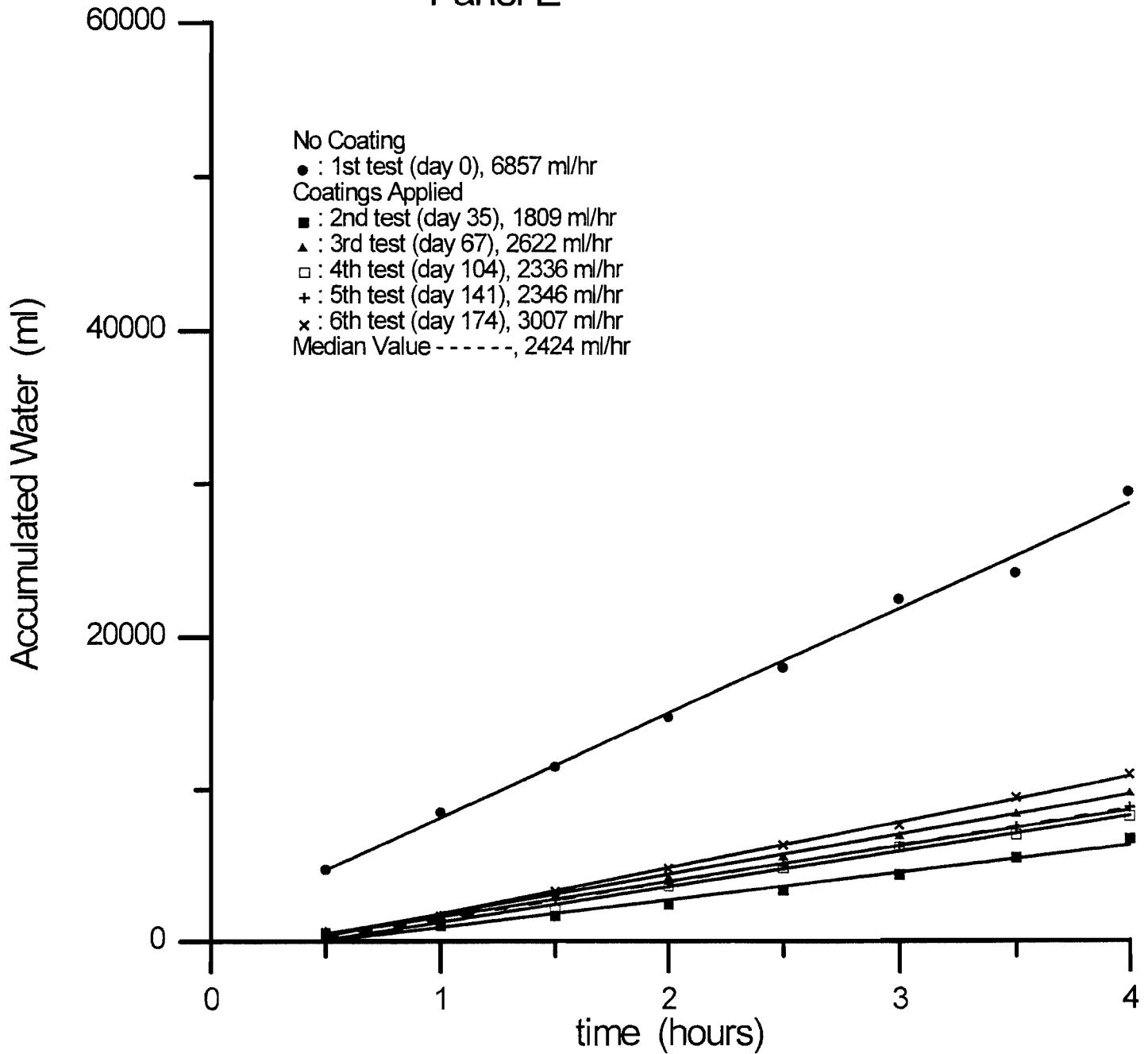


Figure G.6:
Modified ASTM E-514 Test
Panel F

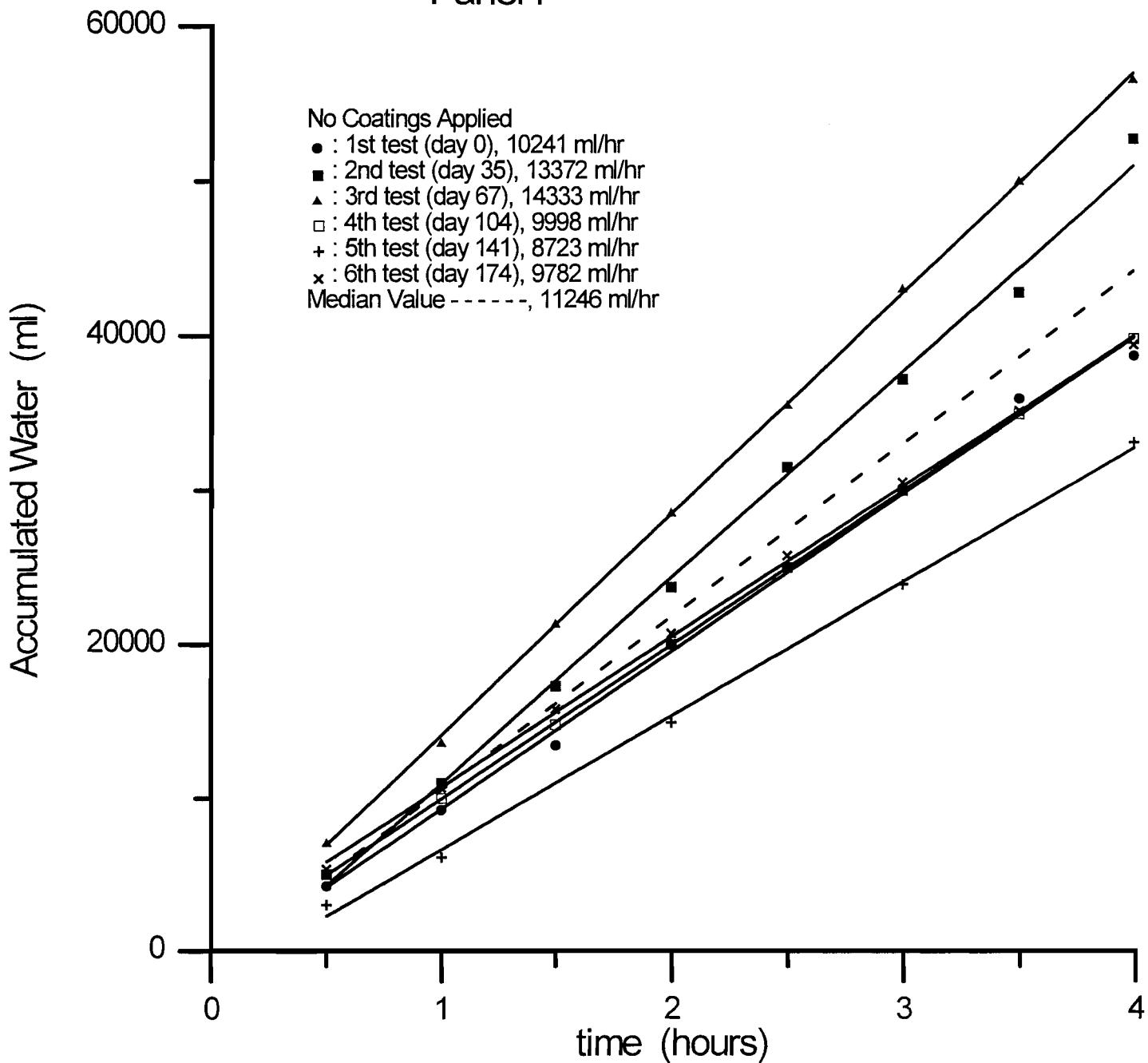
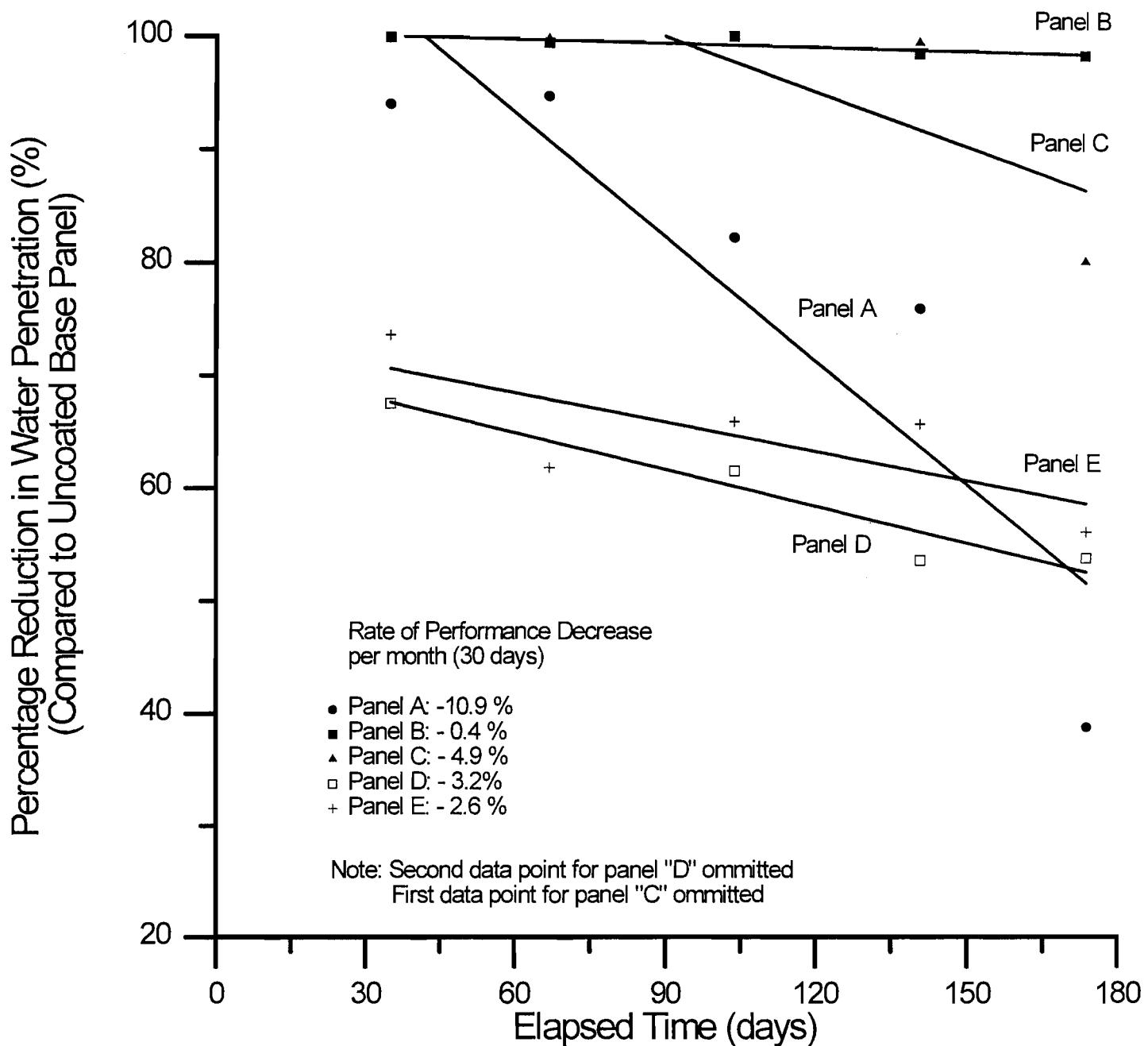


Figure G.7:
Estimated Coating Performance vs. Time



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APPENDIX H: MODIFIED ASTM E-514 EXPERIMENTAL DATA

TABLE H.1: MODIFIED ASTM E-514 TEST
PANEL A

TIME ELAPSED	Test No.1	Test No.2	Test No.3	Test No.4	Test No.5	Test No.6
30 min.	2,000 ml.	600 ml.	100 ml.	140 ml.	300 ml.	920 ml.
1 hr.	5,300 ml	1,240 ml.	240 ml.	300 ml.	680 ml.	2,420 ml.
1 hr. 30 min.	7,500 ml.	1,420 ml.	400 ml.	520 ml.	1,250 ml.	4,200 ml.
2 hr.	10,800 ml.	1,530 ml.	540 ml.	780 ml.	1,920 ml.	6,000 ml.
2 hr. 30 min.	13,000 ml.	1,650 ml.	680 ml.	1,240 ml.	2,660 ml.	7,800 ml.
3 hr.	17,000 ml.	1,750 ml.	840 ml.	2,120 ml.	3,460 ml.	9,800 ml.
3 hr. 30 min.	18,900 ml.	1,890 ml.	1,020 ml.	2,880 ml.	4,270 ml.	11,420 ml.
4 hr.	23,000 ml.	2,080 ml.	1,180 ml.	3,780 ml.	5,095 ml.	13,320 ml.

TABLE H.2: MODIFIED ASTM E-514 TEST
PANEL B

TIME ELAPSED	Test No.1	Test No.2	Test No.3	Test No.4	Test No.5	Test No.6
30 min.	7,000 ml.	0 ml.	0 ml.	0 ml.	0 ml.	0 ml.
1 hr.	14,000 ml.	25 ml.	0 ml.	0 ml.	50 ml.	0 ml.
1 hr. 30 min.	20,000 ml.	35 ml.	0 ml.	0 ml.	----	30 ml.
2 hr.	27,000 ml.	40 ml.	0 ml.	0 ml.	----	110 ml.
2 hr. 30 min.	33,000 ml.	40 ml.	45 ml.	0 ml.	220 ml.	220 ml.
3 hr.	40,000 ml.	40 ml.	95 ml.	0 ml.	----	340 ml.
3 hr. 30 min.	46,000 ml.	40 ml.	----	0 ml.	----	580 ml.
4 hr.	52,500 ml.	40 ml.	305 ml.	0 ml.	650 ml.	740 ml.

TABLE H.3: MODIFIED ASTM E-514 TEST
PANEL C

TIME ELAPSED	Test No.1	Test No.2	Test No.3	Test No.4	Test No.5	Test No.6
30 min.	7,000 ml.	170 ml.	0 ml.	0 ml.	0 ml.	0 ml.
1 hr.	12,500 ml.	1,930 ml.	0 ml.	0 ml.	0 ml.	30 ml.
1 hr. 30 min.	18,300 ml.	5,010 ml.	0 ml.	0 ml.	0 ml.	120 ml.
2 hr.	26,000 ml.	8,510 ml.	0 ml.	0 ml.	0 ml.	1,170 ml.
2 hr. 30 min.	30,600 ml.	12,280 ml.	0 ml.	0 ml.	0 ml.	2,900 ml.
3 hr.	39,600 ml.	16,420 ml.	10 ml.	60 ml.	0 ml.	5,100 ml.
3 hr. 30 min.	43,900 ml.	20,660 ml.	30 ml.	110 ml.	225 ml.	7,630 ml.
4 hr.	52,600 ml.	24,860 ml.	70 ml.	185 ml.	450 ml.	9,630 ml.

TABLE H.4: MODIFIED ASTM E-514 TEST
PANEL D

TIME ELAPSED	Test No.1	Test No.2	Test No. 3	Test No.4	Test No.5	Test No.6
30 min.	8,750 ml.	580 ml.	2,920 ml.	1,200 ml.	2,000 ml.	1,510 ml.
1 hr.	16,000 ml.	1,930 ml.	7,500 ml.	3,200 ml.	4,330 ml.	3,450 ml.
1 hr. 30 min.	21,500 ml.	3,850 ml.	12,740 ml.	5,500 ml.	----	6,280 ml.
2 hr.	30,000 ml.	5,710 ml.	18,420 ml.	8,200 ml.	10,300 ml.	9,510 ml.
2 hr. 30 min.	37,000 ml.	8,410 ml.	24,520 ml.	10,900 ml.	----	12,840 ml.
3 hr.	44,000 ml.	10,300 ml.	31,620 ml.	13,700 ml.	17,130 ml.	16,150 ml.
3 hr. 30 min.	49,000 ml.	12,680 ml.	38,820 ml.	16,700 ml.	----	19,790 ml.
4 hr.	57,800 ml.	16,740 ml.	44,620 ml.	19,600 ml.	24,380 ml.	23,550 ml.

TABLE H.5: MODIFIED ASTM E-514 TEST
PANEL E

TIME ELAPSED	Test No.1	Test No.2	Test No.3	Test No.4	Test No.5	Test No.6
30 min.	4,750 ml.	400 ml.	740 ml.	400 ml.	600 ml.	580 ml.
1 hr.	8,500 ml	1,020 ml.	1,780 ml.	1,080 ml.	1,650 ml.	1,680 ml.
1 hr. 30 min.	11,500 ml.	1,660 ml.	3,020 ml.	2,040 ml.	2,730 ml.	3,290 ml.
2 hr.	15,750 ml.	2,410 ml.	4,280 ml.	3,640 ml.	3,805 ml.	4,790 ml.
2 hr. 30 min.	18,000 ml.	3,360 ml.	5,620 ml.	4,840 ml.	4,985 ml.	6,340 ml.
3 hr.	22,500 ml.	4,390 ml.	7,000 ml.	6,200 ml.	6,235 ml.	7,640 ml.
3 hr. 30 min.	24,200 ml.	5,500 ml.	8,440 ml.	7,020 ml.	7,515 ml.	9,470 ml.
4 hr.	29,500 ml.	6,750 ml.	9,820 ml.	8,220 ml.	8,815 ml.	10,970 ml.

TABLE H.6: MODIFIED ASTM E-514 TEST
PANEL F

TIME ELAPSED	Test No.1	Test No.2	Test No.3	Test No.4	Test No.5	Test No.6
30 min.	4,250 ml.	5,000 ml.	7,100 ml.	5,000 ml.	3000 ml.	5,340 ml.
1 hr.	9,250 ml.	11,000 ml.	13,660 ml.	10,000 ml.	6,120 ml.	10,690 ml.
1 hr. 30 min.	13,500 ml.	17,300 ml.	21,380 ml.	14,800 ml.	----	15,810 ml.
2 hr.	20,000 ml.	23,700 ml.	28,580 ml.	20,000 ml.	14,920 ml.	20,710 ml.
2 hr. 30 min.	25,000 ml.	31,500 ml.	35,580 ml.	25,000 ml.	----	25,760 ml.
3 hr.	30,000 ml.	37,220 ml.	43,120 ml.	30,000 ml.	23,920 ml.	30,530 ml.
3 hr. 30 min.	36,000 ml.	42,840 ml.	50,120 ml.	35,000 ml.	----	35,180 ml.
4 hr.	38,800 ml.	52,840 ml.	56,740 ml.	39,900 ml.	33,170 ml.	39,510 ml.

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APPENDIX I: WATER UPTAKE TUBE TEST CURVES

Figure I.1:
Water Uptake Test on Mortar Joint
Panel A : Location 1

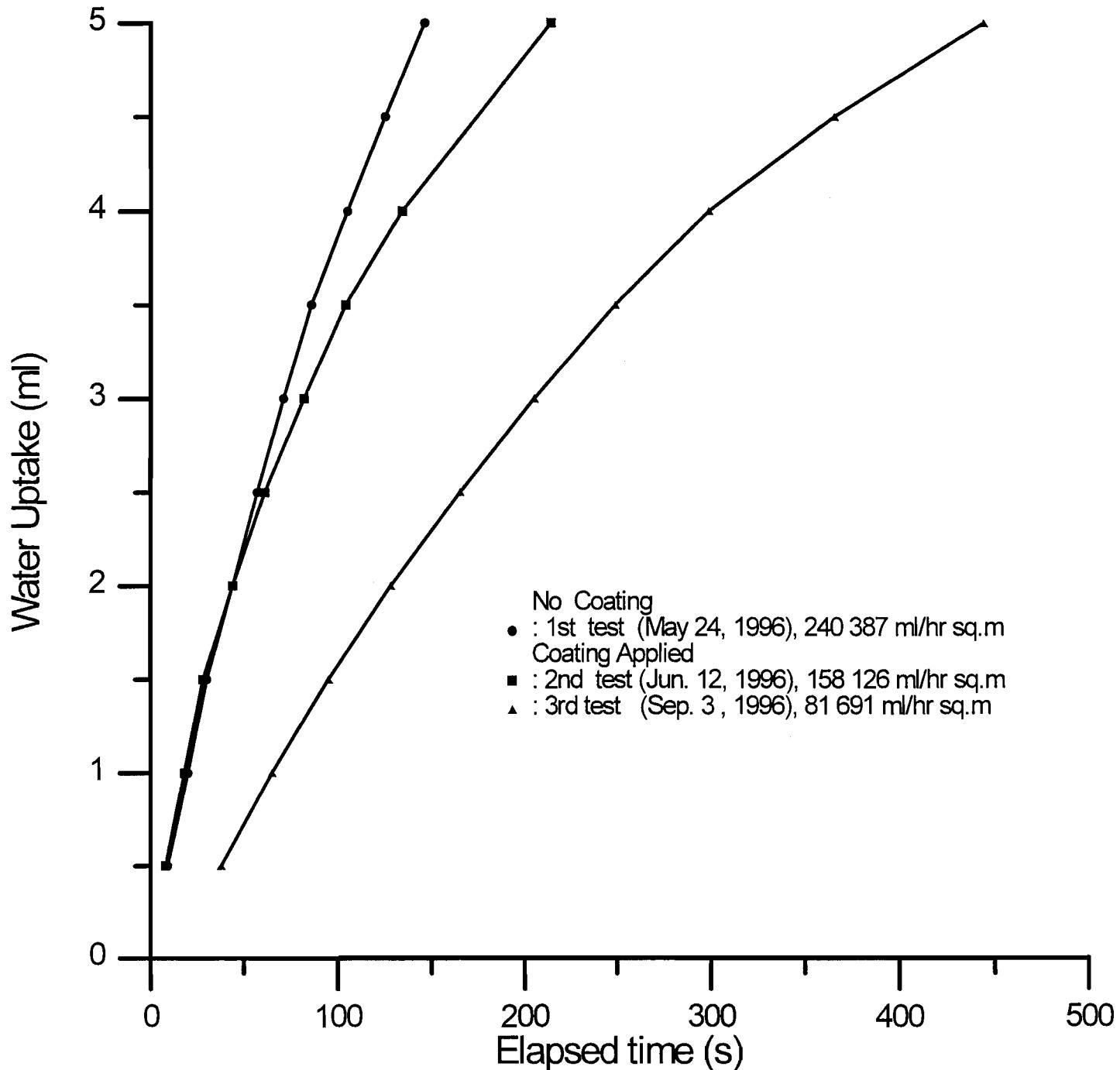


Figure I.2:
Water Uptake Test on Mortar Joint
Panel B : Location 1

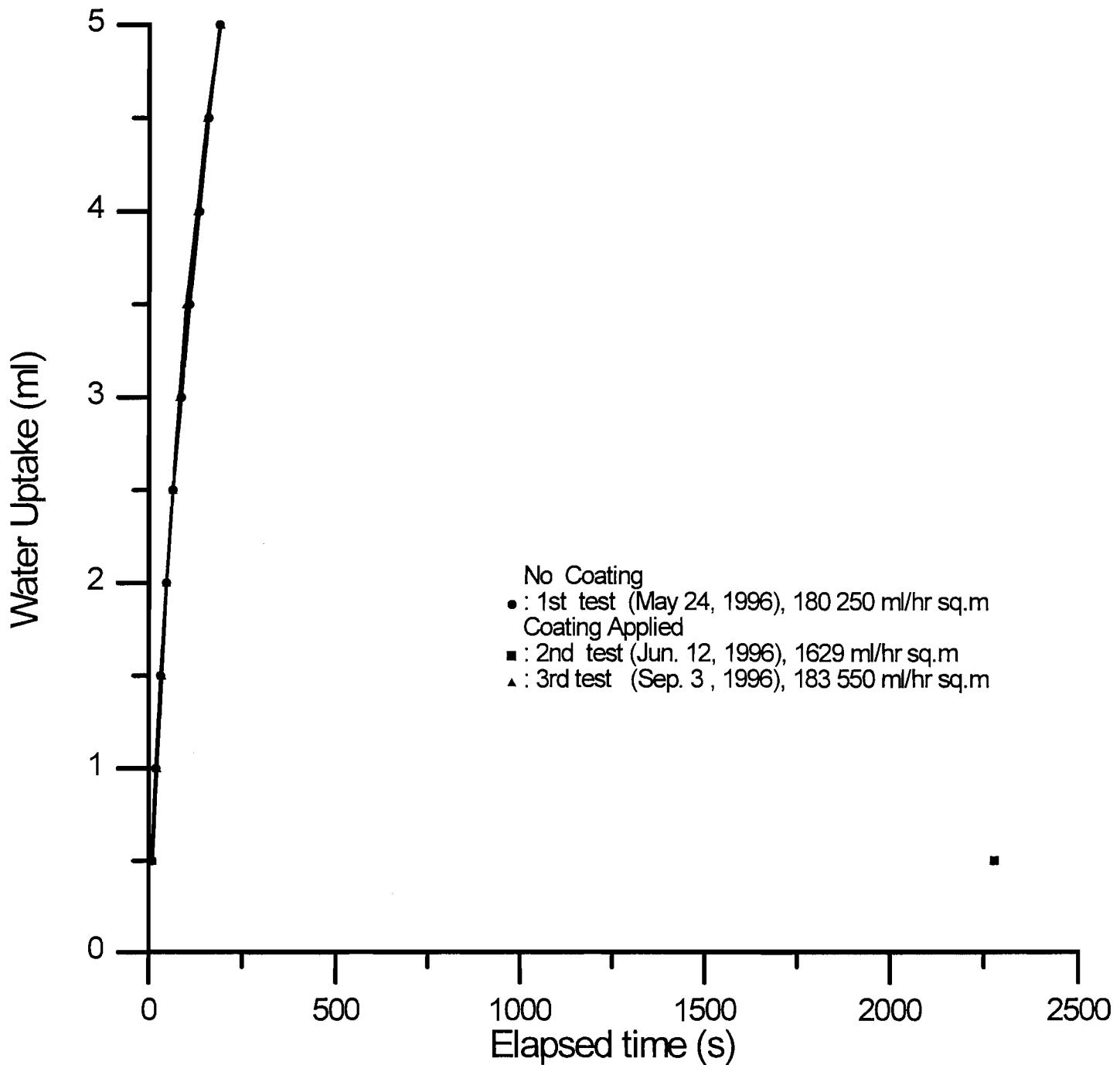


Figure I.3:
Water Uptake Test on Mortar Joint
Panel B : Location 2

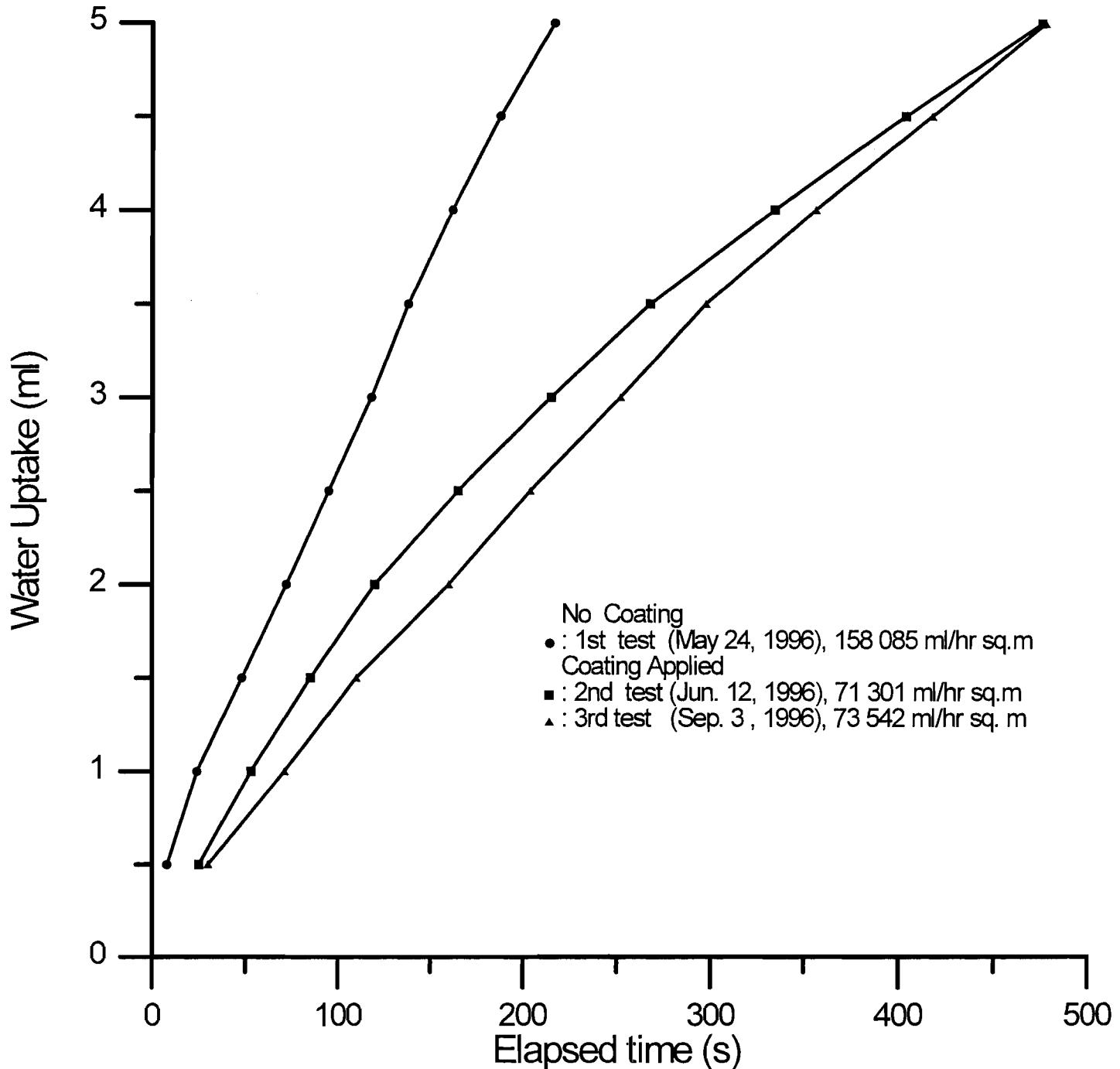


Figure I.4:
Water Uptake Test on Mortar Joint
Panel C : Location 2

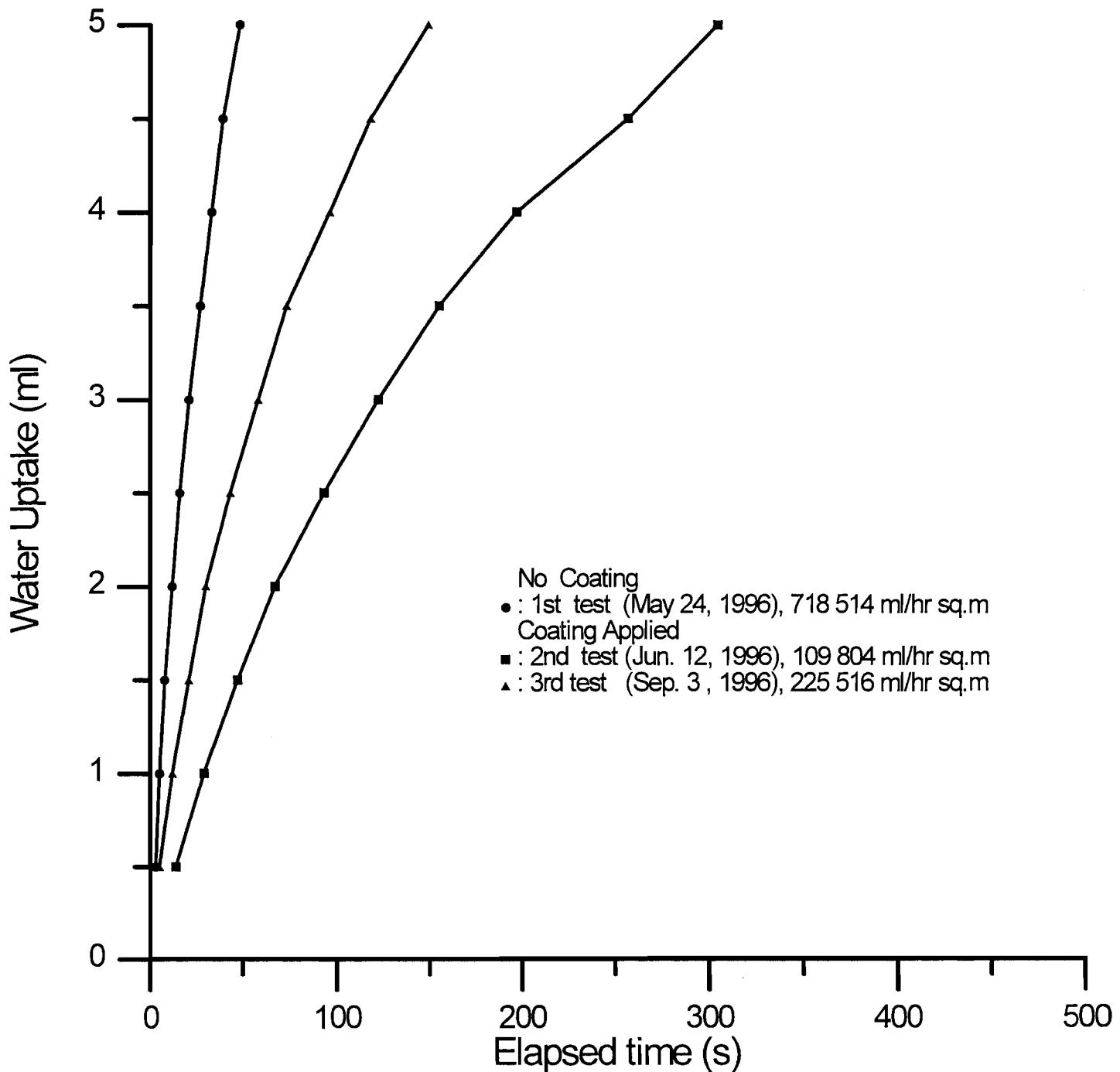


Figure I.5:
Water Uptake Test on Mortar Joint
Panel D : Location 2

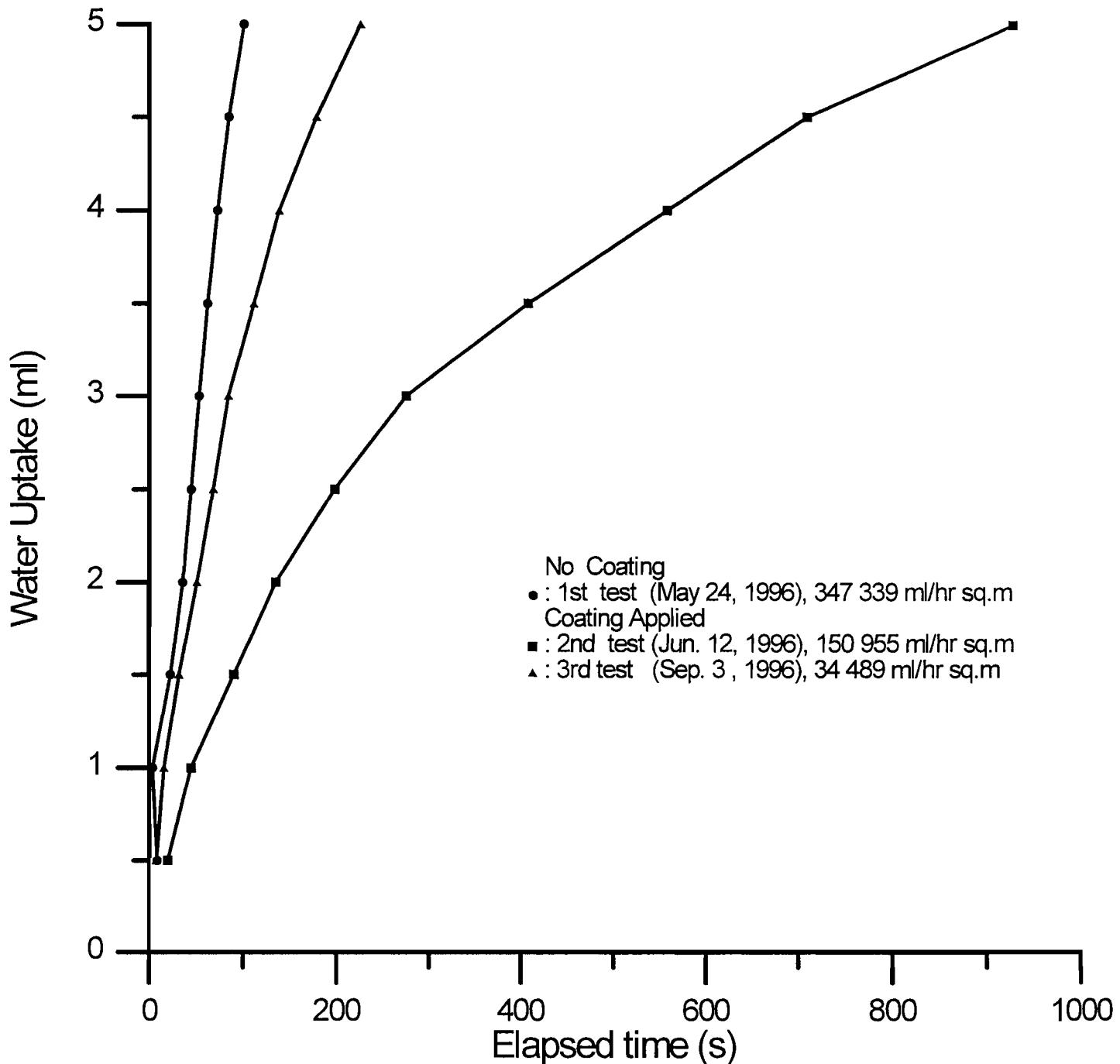


Figure I.6:
Water Uptake Test on Mortar Joint
Panel E : Location 2

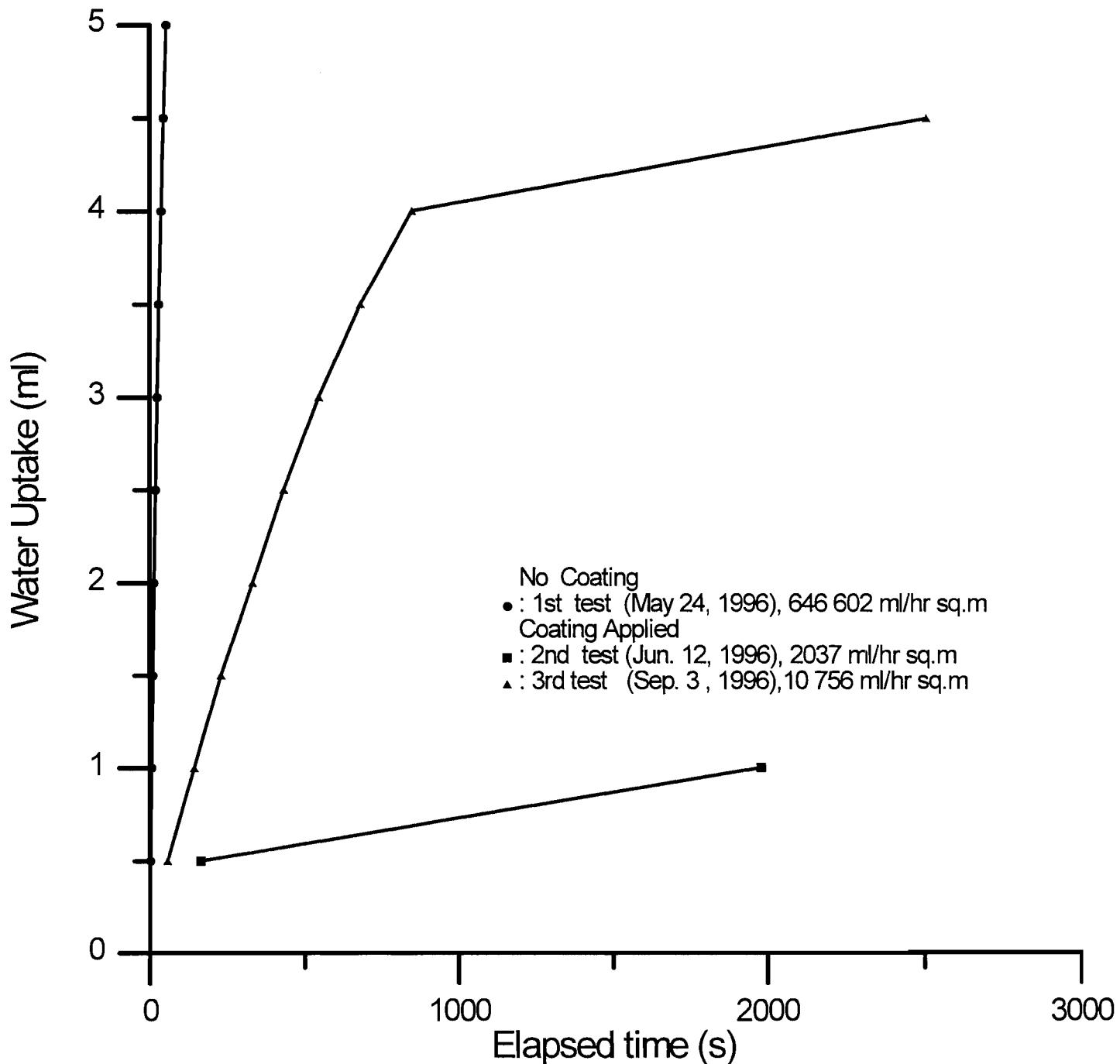


Figure I.7:
Water Uptake Test on Mortar Joint
Panel F : Location 1

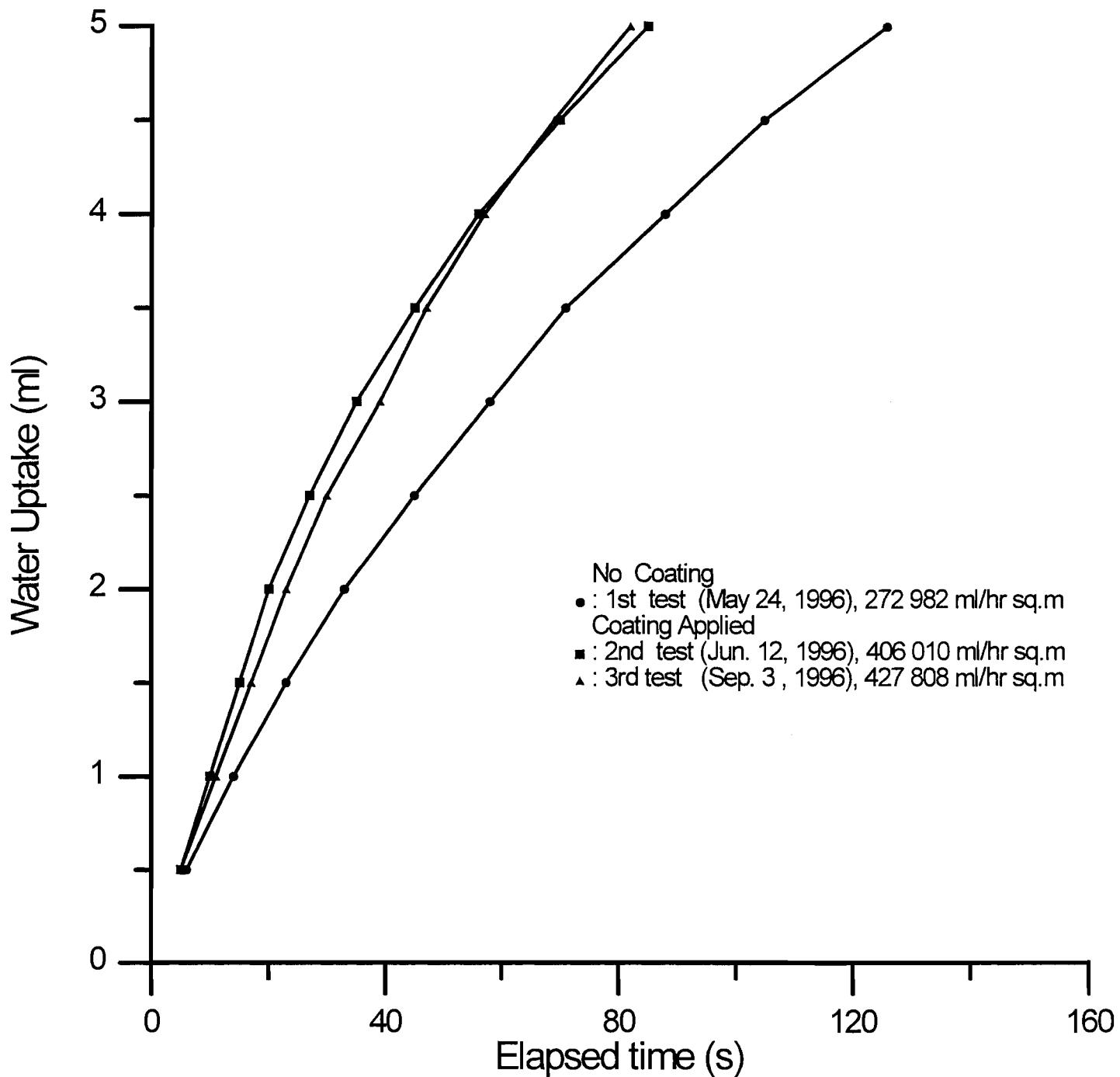


Figure I.8:
Water Uptake Test on Brick Face
Panel A : Location 3

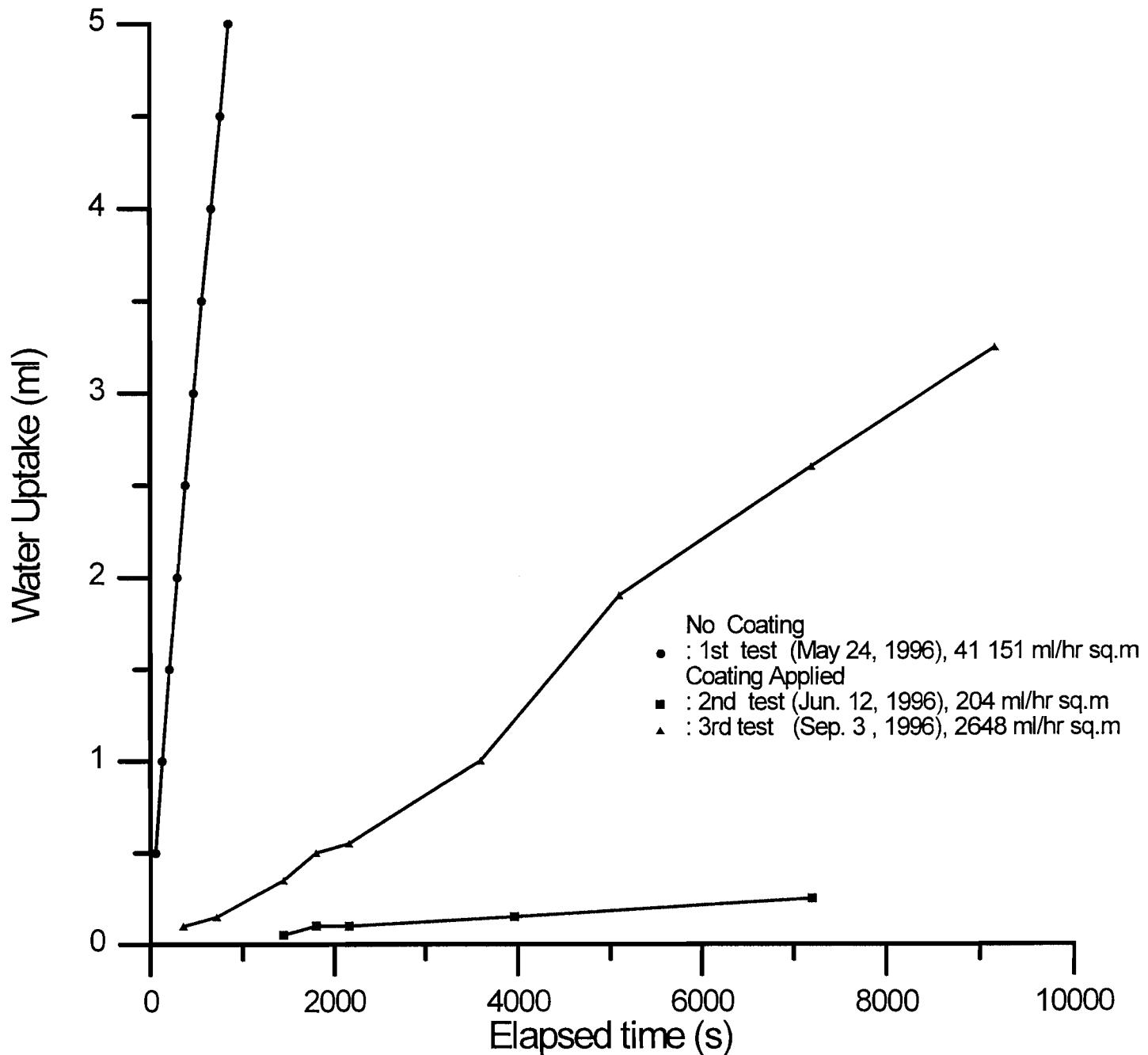


Figure I.9:
Water Uptake Test on Brick Face
Panel A : Location 4

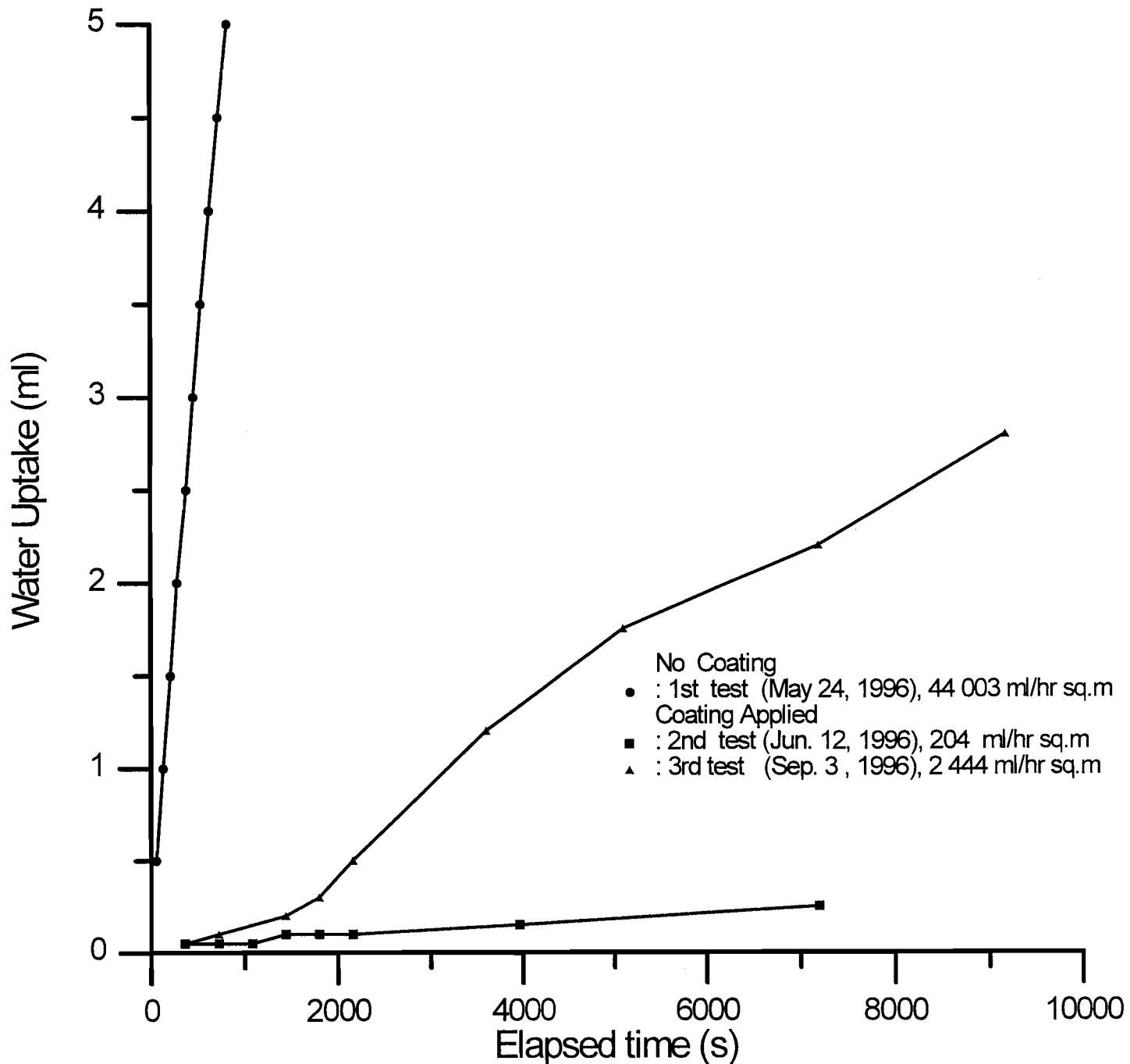


Figure I.10:
Water Uptake Test on Brick Face
Panel B : Location 3

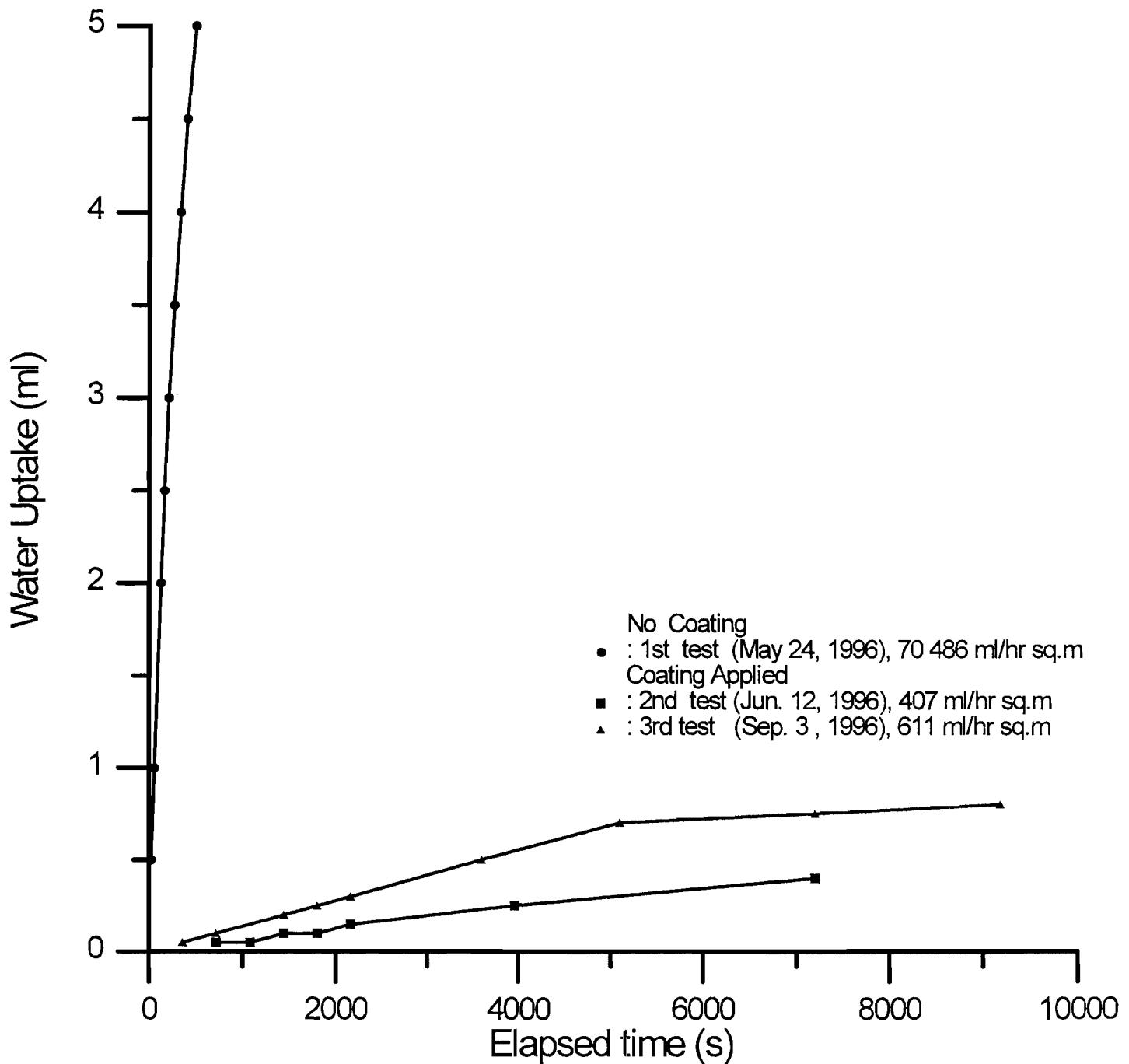


Figure I.11:
Water Uptake Test on Brick Face
Panel B : Location 4

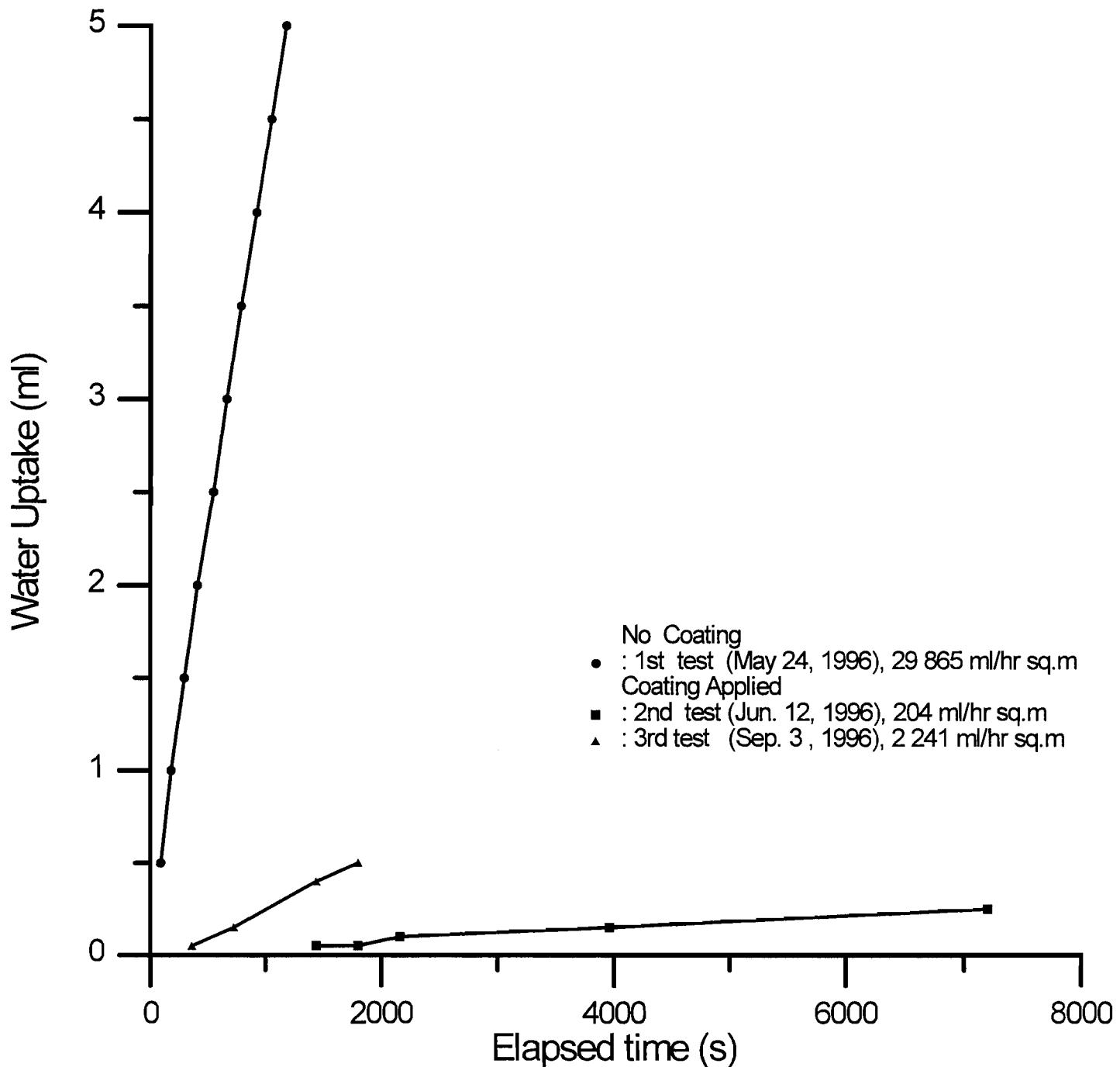


Figure I.12:
Water Uptake Test on Brick Face
Panel C : Location 3

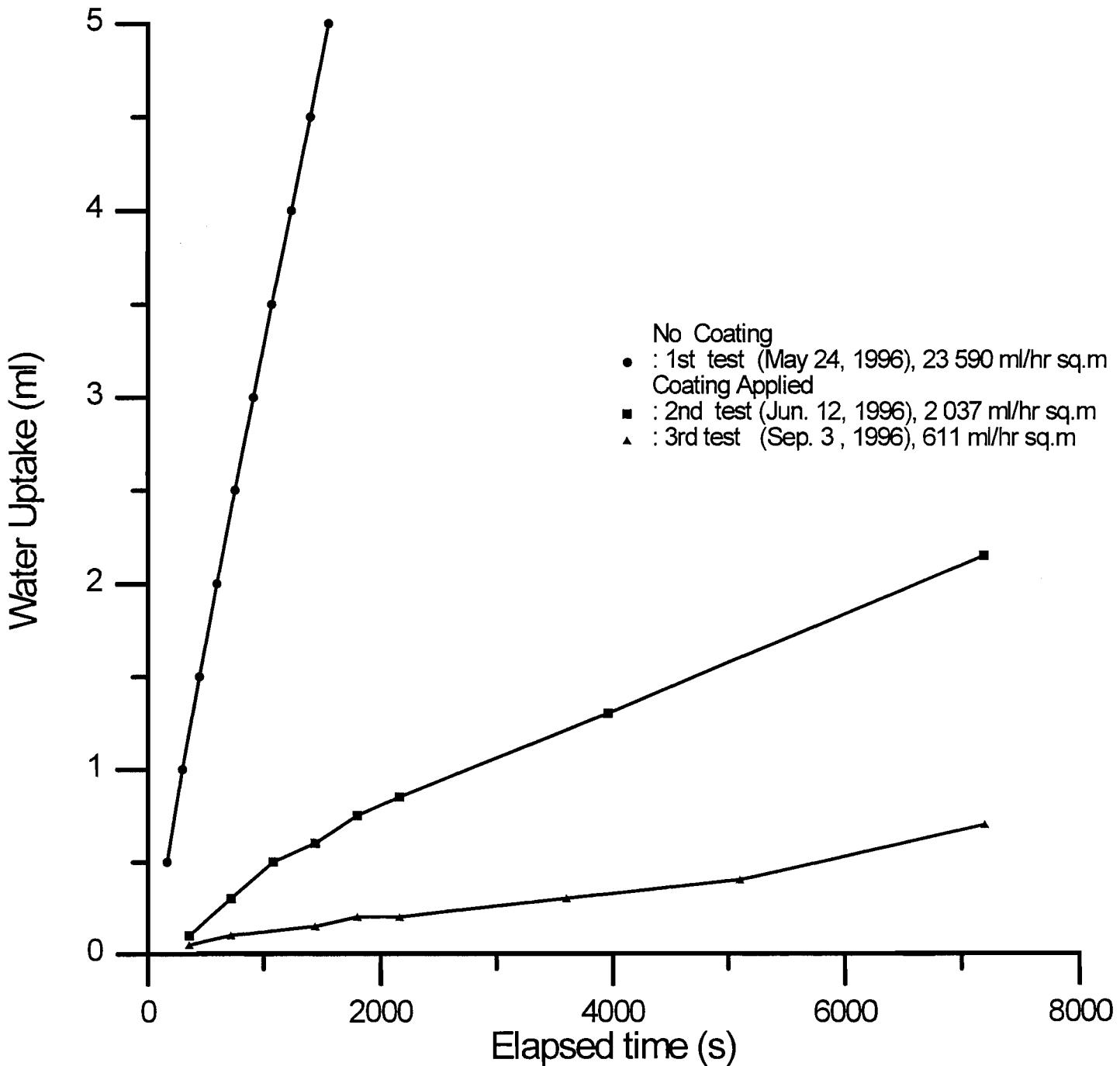


Figure I.13:
Water Uptake Test on Brick Face
Panel C : Location 4

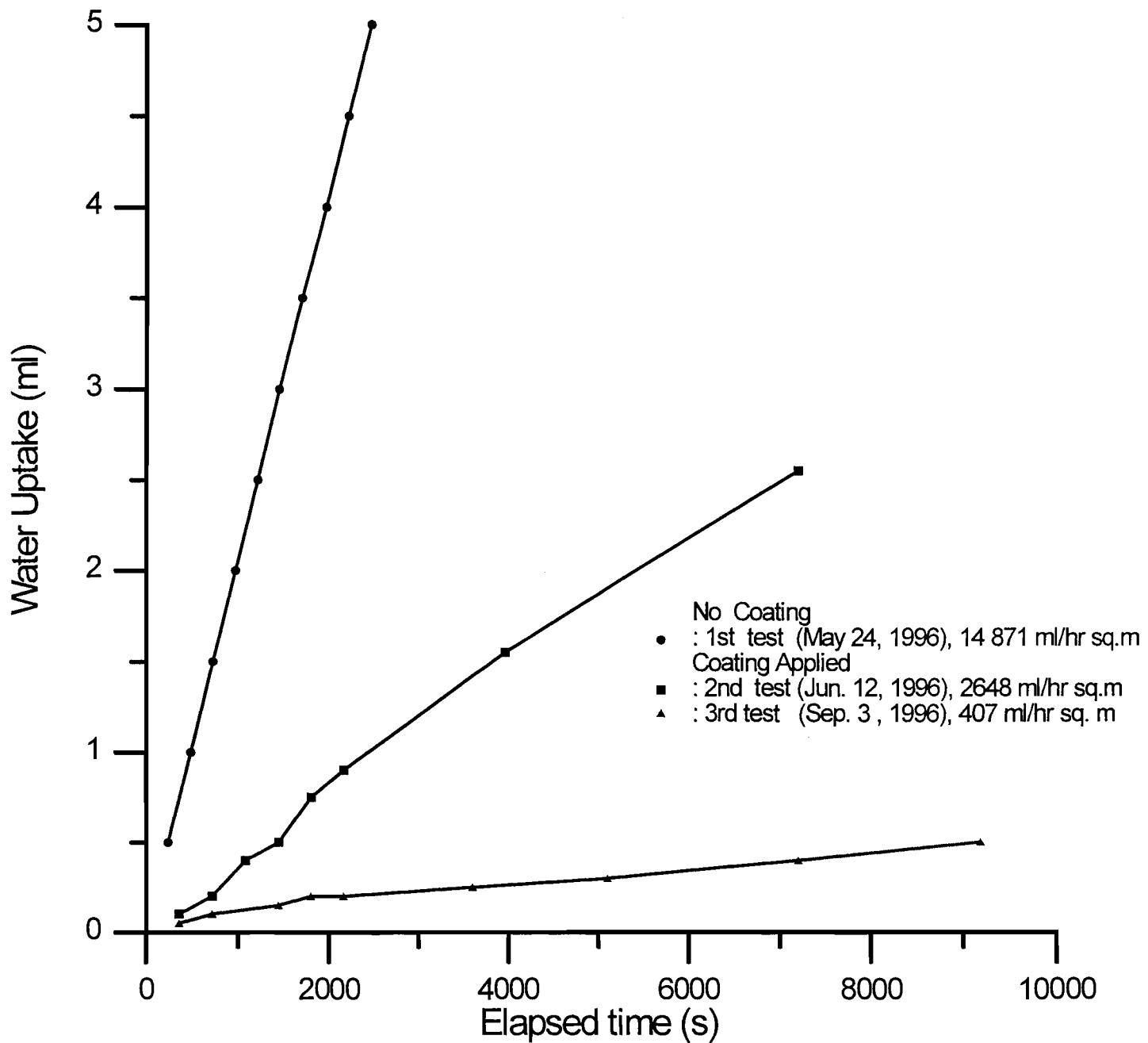


Figure I.14:
Water Uptake Test on Brick Face
Panel D : Location 3

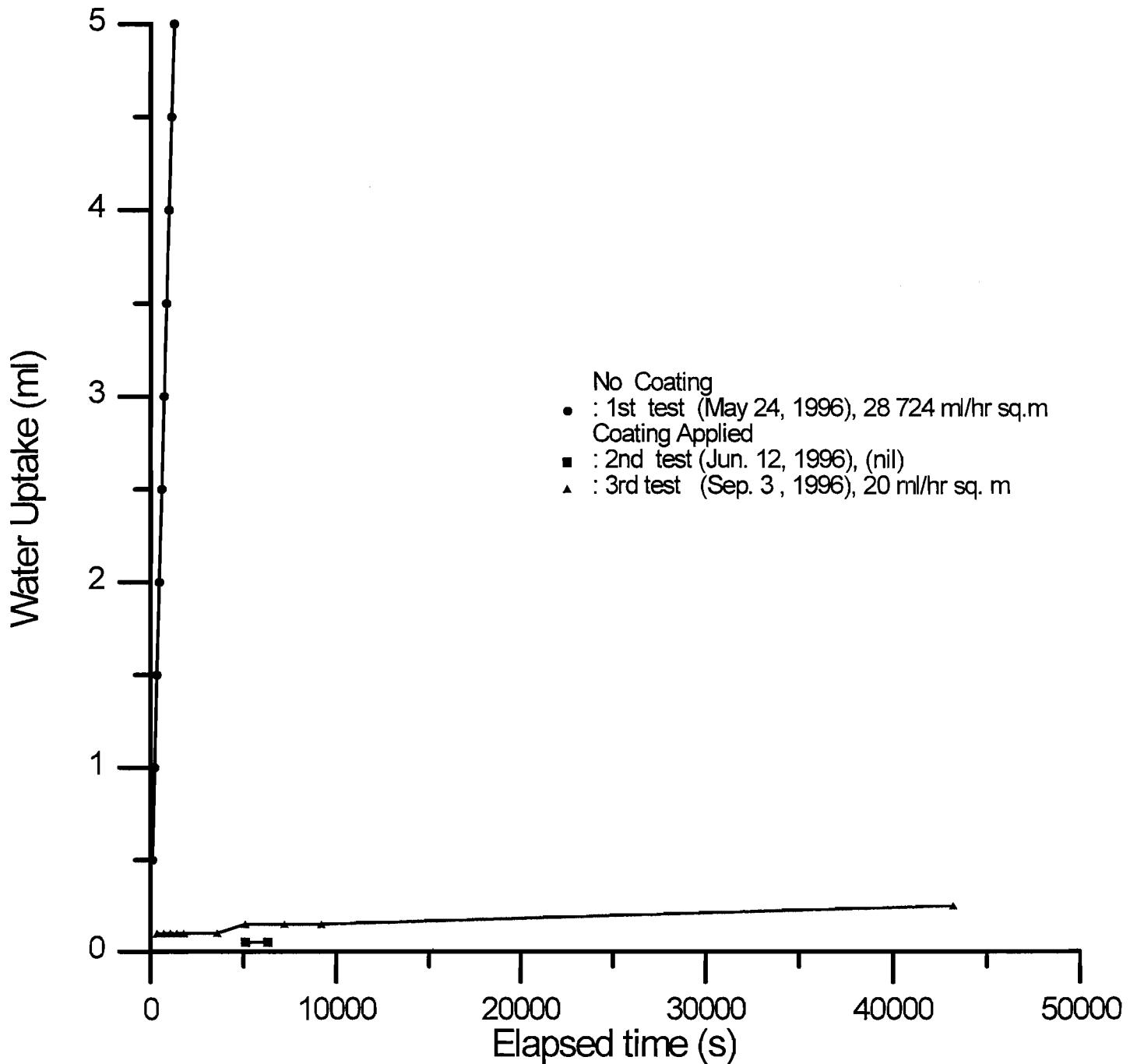


Figure I.15:
Water Uptake Test on Brick Face
Panel D : Location 4

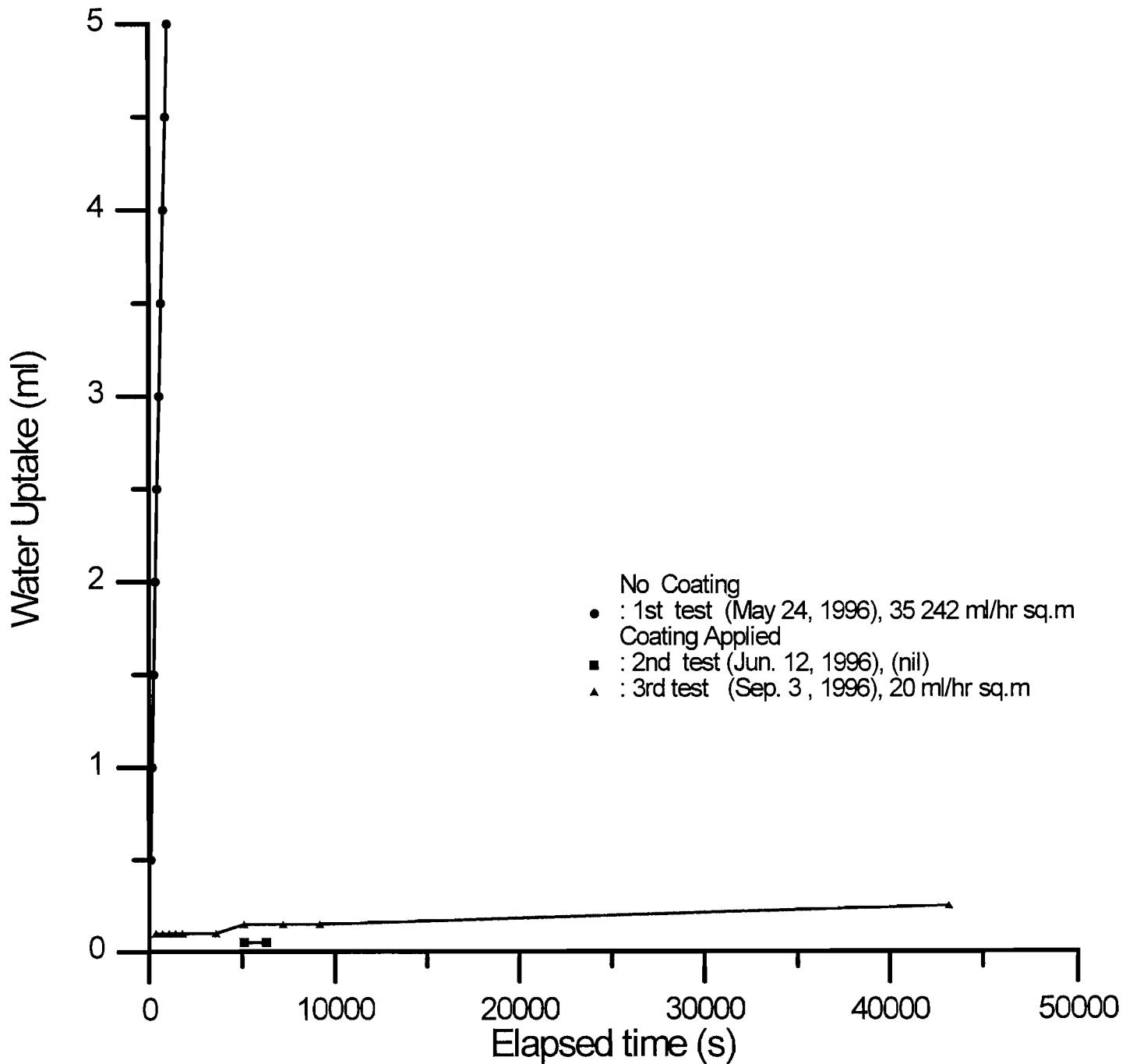


Figure I.16:
Water Uptake Test on Brick Face
Panel E : Location 3

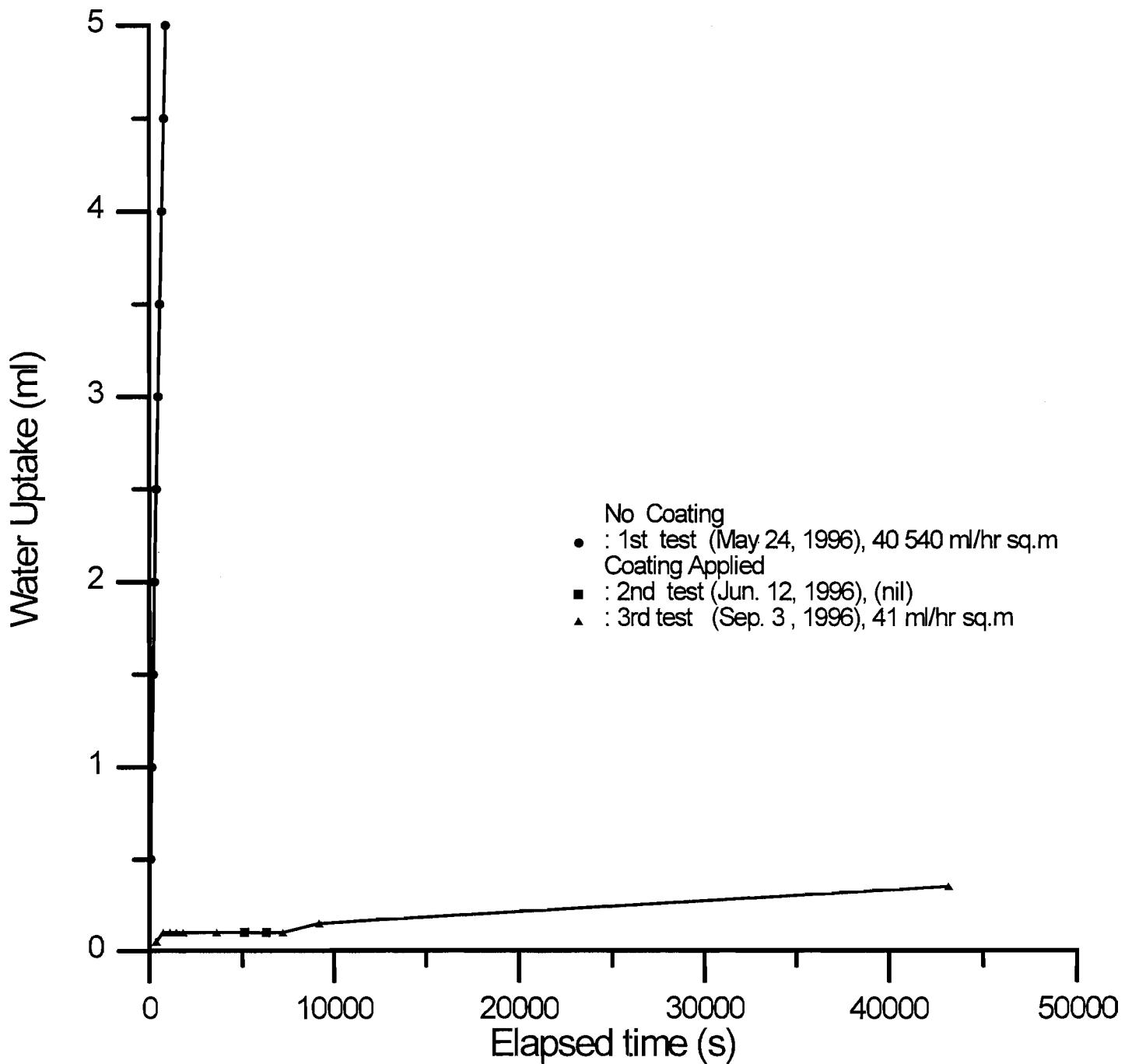


Figure I.17:
Water Uptake Test on Brick Face
Panel E : Location 4

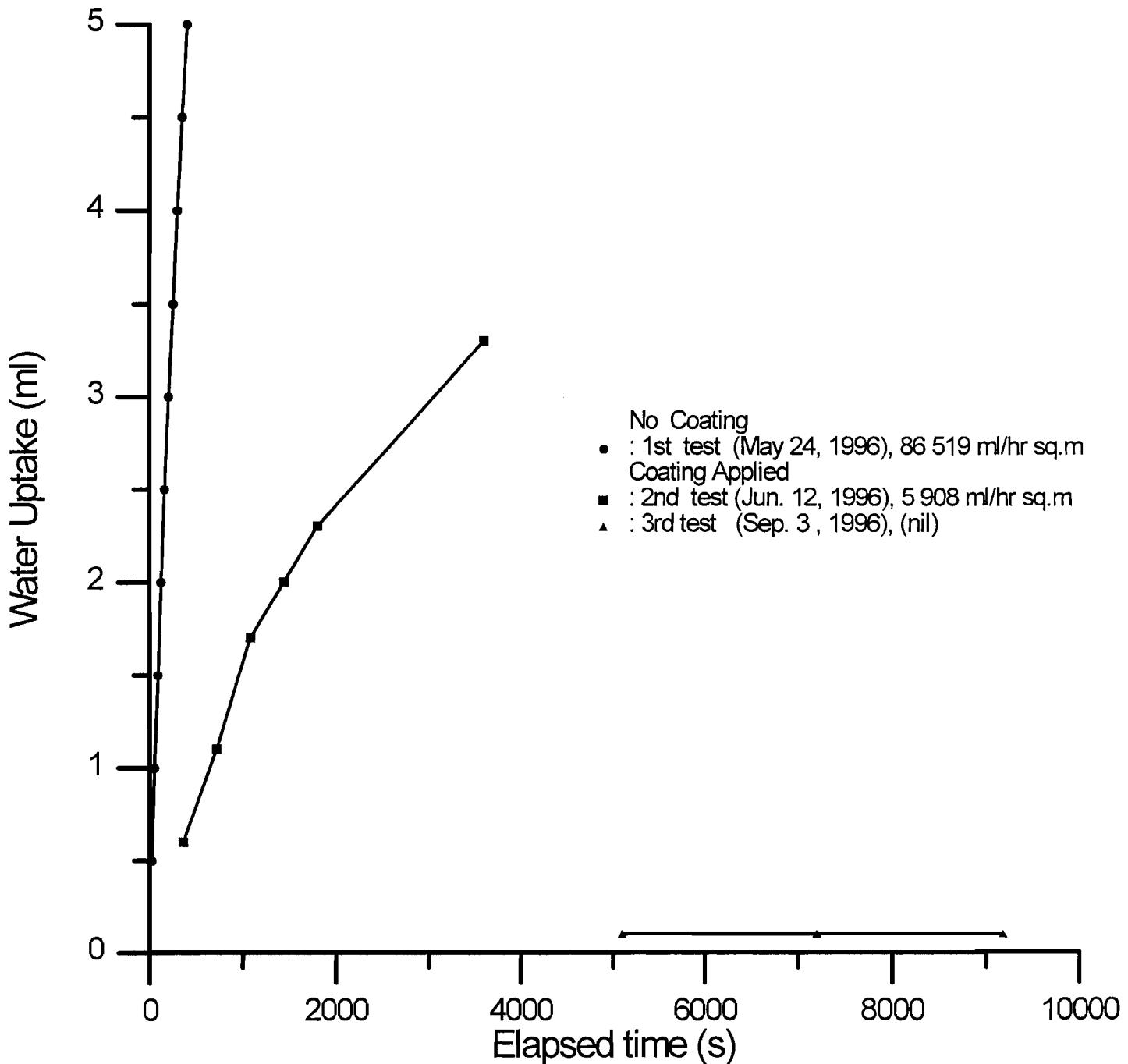


Figure I.18:
Water Uptake Test on Brick Face
Panel F : Location 3

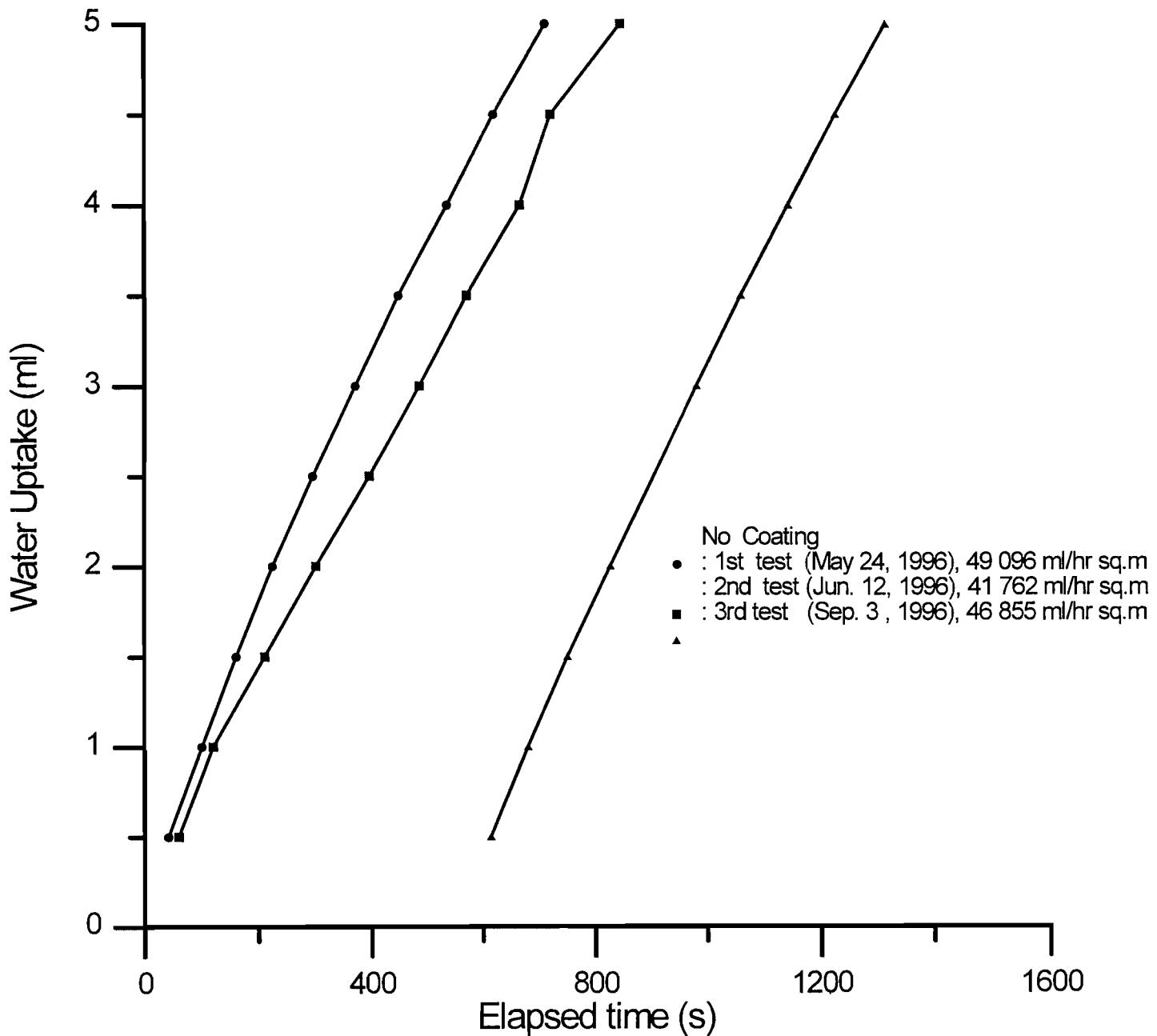
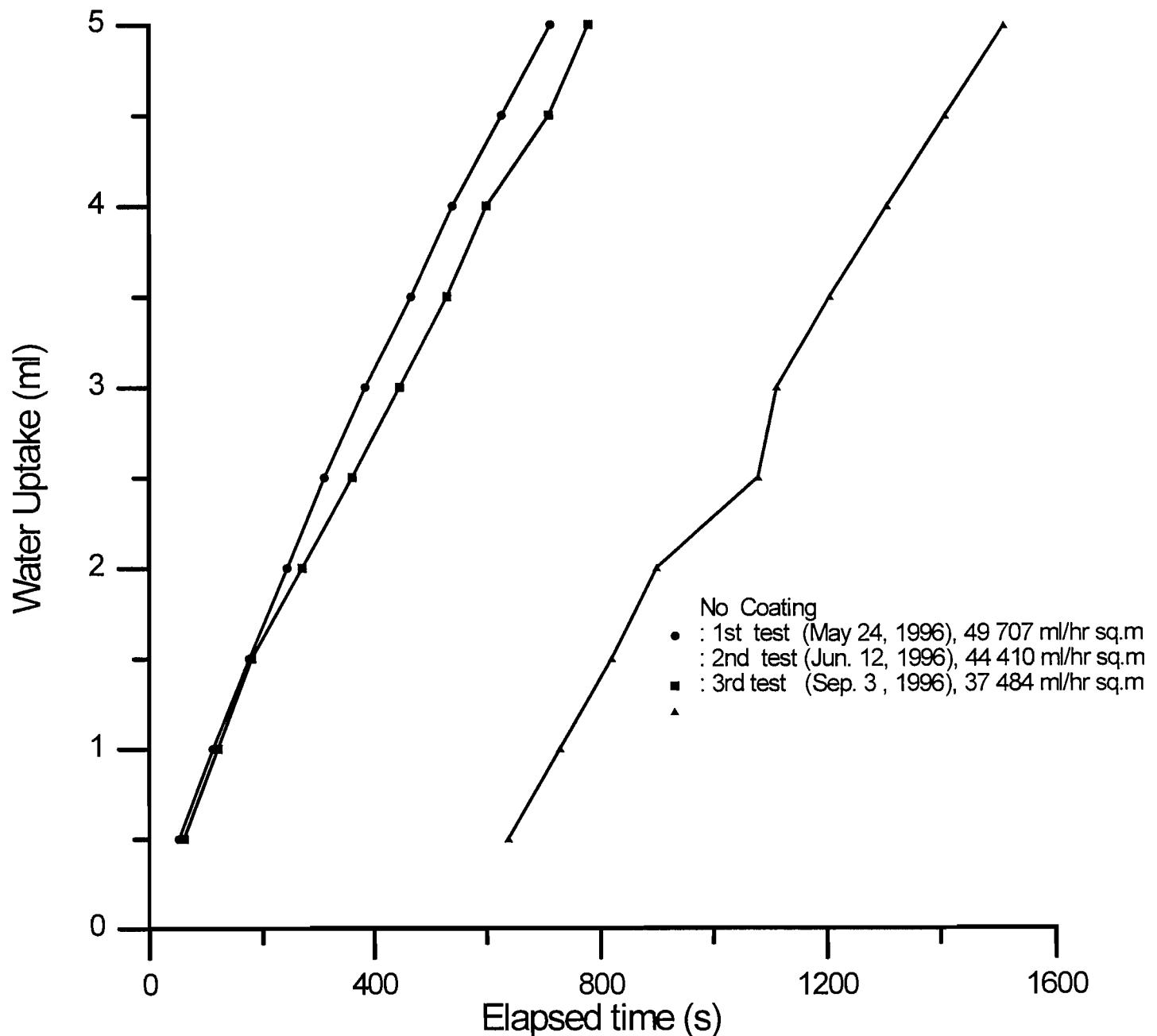


Figure I.19:
Water Uptake Test on Brick Face
Panel F : Location 4



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APPENDIX J: WATER UPTAKE TUBE TEST EXPERIMENTAL DATA

TABLE J.1: WATER UPTAKE TUBE TEST
TEST No.1 (Mortar joints)

Uptake	A1	B1	B2	C2	D2	E2	F1
0.5 ml.	9 sec.	9 sec.	8 sec.	3 sec.	9 sec.	3 sec.	6 sec.
1.0 ml.	20 sec.	20 sec.	24 sec.	5 sec.	4 sec.	6 sec.	14 sec.
1.5 ml.	30 sec.	32 sec.	48 sec.	8 sec.	23 sec.	11 sec.	23 sec.
2.0 ml.	44 sec.	48 sec.	72 sec.	12 sec.	36 sec.	15 sec.	33 sec
2.5 ml.	57 sec.	65 sec.	95 sec.	16 sec.	45 sec.	20 sec.	45 sec.
3.0 ml.	71 sec.	87 sec.	118 sec	21 sec.	53 sec.	25 sec.	58 sec.
4.5 ml.	86 sec.	108 sec.	138 sec.	27 sec.	62 sec.	30 sec.	71 sec.
4.0 ml.	105 sec.	134 sec.	162 sec.	33 sec.	72 sec.	38 sec.	88 sec.
4.5 ml.	125 sec.	158 sec.	188 sec.	39 sec.	84 sec.	45 sec.	105 sec.
5.0 ml.	146 sec.	188 sec.	217 sec.	48 sec.	100 sec.	54 sec.	126 sec.

TABLE J.2: WATER UPTAKE TUBE TEST
TEST No.2 (Mortar joints)

Uptake	A1	B1	B2	C2	D2	E2	F1
0.5 ml.	8 sec.	2,280 sec.	25 sec.	14 sec.	20 sec.	165 sec.	5 sec.
1.0 ml.	18 sec.	----	53 sec.	29 sec.	45 sec.	1,980 sec.	10 sec.
1.5 ml.	28 sec.	----	85 sec.	47 sec.	90 sec.	----	15 sec.
2.0 ml.	44 sec.	----	120 sec.	67 sec.	135 sec.	----	20 sec
2.5 ml.	61 sec.	----	165 sec.	93 sec.	198 sec.	----	27 sec.
3.0 ml.	82 sec.	----	215 sec	122 sec.	275 sec.	----	35 sec.
4.5 ml.	104 sec.	----	268 sec.	155 sec.	408 sec.	----	45 sec.
4.0 ml.	134 sec.	----	335 sec.	197 sec.	558 sec.	----	56 sec.
4.5 ml.	206 sec.	----	405 sec.	257 sec.	710 sec.	----	70 sec.
5.0 ml.	214 sec.	----	478 sec.	305 sec.	930 sec.	----	85 sec.

TABLE J.3: WATER UPTAKE TUBE TEST
TEST No.3 (Mortar joints)

Uptake	A1	B1	C2	D2	E2	F1
0.5 ml.	38 sec.	10 sec.	30 sec.	5 sec.	8 sec.	58 sec.
1.0 ml.	65 sec.	22 sec.	71 sec.	12 sec.	16 sec.	144 sec.
1.5 ml.	95 sec.	35 sec.	110 sec.	21 sec.	32 sec.	230 sec.
2.0 ml.	128 sec.	48 sec.	160 sec.	30 sec.	51 sec.	332 sec.
2.5 ml.	165 sec.	65 sec.	204 sec.	43 sec.	68 sec.	432 sec.
3.0 ml.	205 sec.	82 sec.	252 sec.	58 sec.	84 sec.	544 sec.
4.5 ml.	249 sec.	100 sec.	298 sec.	73 sec.	111 sec.	678 sec.
4.0 ml.	299 sec.	128 sec.	357 sec.	96 sec.	138 sec.	845 sec.
4.5 ml.	366 sec.	155 sec.	419 sec.	118 sec.	178 sec.	2,508 sec.
5.0 ml.	445 sec.	190 sec.	480 sec.	149 sec.	225 sec.	-----
						82 sec.

TABLE J.4: WATER UPTAKE TUBE TEST
TEST No.1 (Brick units)

Uptake	A3	A4	B3	B4	C3	C4	D3	D4	E3	E4	F3	F4
0.5 ml.	60 sec.	60 sec.	25 sec.	90 sec.	167 sec.	238 sec.	103 sec.	87 sec.	62 sec.	24 sec.	42 sec.	52 sec.
1.0 ml.	133 sec.	133 sec.	57 sec.	178 sec.	300 sec.	484 sec.	228 sec.	164 sec.	132 sec.	54 sec.	100 sec.	112 sec.
1.5 ml.	211 sec.	211 sec.	----	294 sec.	446 sec.	724 sec.	340 sec.	274 sec.	212 sec.	92 sec.	160 sec.	176 sec.
2.0 ml.	297 sec.	282 sec.	128 sec.	408 sec.	597 sec.	968 sec.	468 sec.	347 sec.	296 sec.	125 sec.	224 sec.	244 sec.
2.5 ml.	385 sec.	377 sec.	166 sec.	544 sec.	752 sec.	1,208 sec.	592 sec.	444 sec.	382 sec.	163 sec.	294 sec.	310 sec.
3.0 ml.	472 sec.	452 sec.	210 sec.	660 sec.	910 sec.	1,445 sec.	723 sec.	559 sec.	472 sec.	205 sec.	370 sec.	384 sec.
3.5 ml.	562 sec.	532 sec.	266 sec.	786 sec.	1,065 sec.	1,695 sec.	852 sec.	659 sec.	564 sec.	254 sec.	447 sec.	466 sec.
4.0 ml.	663 sec.	623 sec.	334 sec.	918 sec.	1,232 sec.	1,965 sec.	978 sec.	779 sec.	662 sec.	300 sec.	534 sec.	540 sec.
4.5 ml.	762 sec.	716 sec.	405 sec.	1,047 sec.	1,395 sec.	2,208 sec.	1,114 sec.	897 sec.	768 sec.	350 sec.	618 sec.	627 sec.
5.0 ml.	850 sec.	812 sec.	492 sec.	1,176 sec.	1,552 sec.	2,460 sec.	1,248 sec.	1,015 sec.	874 sec.	402 sec.	710 sec.	713 sec.

TABLE J.5: WATER UPTAKE TUBE TEST
TEST No.2 (Brick units)

Time	A3	A4	B3	B4	C3	C4	D3	D4	E3	E4	Uptake	F3	F4
360 sec.	0 ml.	0.05 ml.	0 ml.	0 ml.	0.1 ml.	0 ml.	0 ml.	0 ml.	0.6 ml.	0.5 ml.	0.5 ml.	60 sec.	60 sec.
720 sec.	0 ml.	0.05 ml.	0.05 ml.	0 ml.	0.3 ml.	0.2 ml.	0 ml.	0 ml.	0 ml.	1.1 ml.	1.0 ml.	120 sec.	120 sec.
1,080 sec.	0 ml.	0.05 ml.	0.05 ml.	0 ml.	0.5 ml.	0.4 ml.	0 ml.	0 ml.	0 ml.	1.7 ml.	1.5 ml.	210 sec.	180 sec.
1,440 sec.	0.05 ml.	0.1 ml.	0.1 ml.	0.05 ml.	0.6 ml.	0.5 ml.	0 ml.	0 ml.	2.0 ml.	2.0 ml.	300 sec.	270 sec.	
1,800 sec.	0.1 ml.	0.1 ml.	0.1 ml.	0.05 ml.	0.75 ml.	0.75 ml.	0 ml.	0 ml.	2.3 ml.	2.5 ml.	395 sec.	360 sec.	
2,160 sec	0.1 ml.	0.15 ml.	0.1 ml.	0.85 ml.	0.9 ml.	---	---	---	---	3.0 ml.	485 sec.	445 sec.	
3,600 sec	---	---	---	---	---	0 ml.	0 ml.	0 ml.	3.3 ml.	3.5 ml.	570 sec.	530 sec.	
3,960 sec.	0.15 ml.	0.15 ml.	0.25 ml.	0.15 ml.	1.3 ml.	1.55 ml.	---	---	---	4.0 ml.	665 sec.	600 sec.	
5,100 sec.	---	---	---	---	---	0.05 ml.	0.05 ml.	0.1 ml.	---	4.5 ml.	720 sec.	710 sec.	
6,300 sec	---	---	---	---	---	0.05 ml.	0.05 ml.	0.1 ml.	---	5.0 ml.	845 sec.	780 sec.	
7,200 sec.	0.25 ml.	0.25 ml.	0.4 ml.	0.25 ml.	2.15 ml.	2.55 ml.	---	---	---	---			

TABLE J.6: WATER UPTAKE TUBE TEST
TEST No.3 (Brick units)

Time	A3	A4	B3	B4	C3	C4	D3	D4	E3	E4	Uptake	F3	F4
360 sec.	0.1 ml.	0.05 ml.	0.05 ml.	0.05 ml.	0.05 ml.	0.05 ml.	0.1 ml.	0.05 ml.	0 ml.	0.5 ml.	614 sec.	638 sec.	
720 sec.	0.15 ml.	0.1 ml.	0.15 ml.	0.1 ml.	0.1 ml.	0.1 ml.	0.1 ml.	0.1 ml.	0 ml.	1.0 ml.	680 sec.	729 sec.	
1,080 sec.	---	---	---	---	---	0.1 ml.	0.1 ml.	0.1 ml.	0 ml.	1.5 ml.	750 sec.	820 sec.	
1,440 sec.	0.35 ml.	0.2 ml.	0.4 ml.	0.15 ml.	0.15 ml.	0.1 ml.	0.1 ml.	0.1 ml.	0 ml.	2.0 ml.	827 sec.	900 sec.	
1,800 sec.	0.5 ml.	0.3 ml.	0.25 ml.	0.5 ml.	0.2 ml.	0.2 ml.	0.1 ml.	0.1 ml.	0 ml.	2.5 ml.	----	1,080 sec.	
2,160 sec	0.55 ml.	0.5 ml.	0.3 ml.	----	0.2 ml.	0.2 ml.	----	----	----	3.0 ml.	982 sec.	1,114 sec.	
3,600 sec	1.0 ml.	1.2 ml.	0.5 ml.	----	0.3 ml.	0.25 ml.	0.1 ml.	0.15 ml.	0.1 ml.	0 ml.	3.5 ml.	1,060 sec.	1,207 sec.
5,100 sec.	1.9 ml.	1.75 ml.	0.7 ml.	----	0.4 ml.	0.3 ml.	0.15 ml.	0.15 ml.	0.1 ml.	4.0 ml.	1,144 sec.	1,309 sec.	
7,200 sec	2.6 ml.	2.2 ml.	0.75 ml.	----	0.7 ml.	0.4 ml.	0.15 ml.	0.15 ml.	0.1 ml.	4.5 ml.	1,227 sec.	1,412 sec.	
9,180 sec.	3.25	2.8 ml.	0.8 ml.	----	----	0.5 ml.	0.15 ml.	0.15 ml.	0.1 ml.	5.0 ml.	1,315 sec.	1,515 sec.	
43,200 sec.	---	---	---	---	---	---	0.25 ml.	0.25 ml.	0.35 ml.	----	----	----	

Project no.: RD-0100-A/B

APPENDIX K: AIR TEST EXPERIMENTAL DATA

TABLE K.1: AIR INFILTRATION TESTS

ΔP (nom.)	PANEL A		PANEL B		PANEL C		PANEL D		PANEL E		PANEL F		
	Test No.1	Test No.2											
25 Pa	0.43 cfm (25 Pa)	0.52 cfm (30 Pa)	0.53 cfm (25 Pa)	0.52 cfm (30 Pa)	0.63 cfm (23 Pa)	0.56 cfm (20 Pa)	0.68 cfm (23 Pa)	0.57 cfm (25 Pa)	0.58 cfm (25 Pa)	0.56 cfm (30 Pa)	0.70 cfm (26 Pa)	0.52 cfm (30 Pa)	
75 Pa	1.00 cfm (76 Pa)	1.05 cfm (80 Pa)	1.00 cfm (75 Pa)	1.20 cfm (80 Pa)	1.70 cfm (79 Pa)	1.40 cfm (70 Pa)	1.40 cfm (74 Pa)	1.40 cfm (75 Pa)	1.65 cfm (75 Pa)	1.25 cfm (70 Pa)	1.60 cfm (76 Pa)	1.40 cfm (70 Pa)	
150 Pa	1.95 cfm (151 Pa)	2.00 cfm (155 Pa)	1.85 cfm (151 Pa)	2.10 cfm (155 Pa)	2.90 cfm (156 Pa)	2.80 cfm (155 Pa)	2.80 cfm (155 Pa)	2.60 cfm (147 Pa)	2.60 cfm (155 Pa)	3.20 cfm (152 Pa)	2.30 cfm (150 Pa)	2.80 cfm (146 Pa)	3.10 cfm (155 Pa)
300 Pa	3.40 cfm (295 Pa)	3.60 cfm (305 Pa)	3.60 cfm (297 Pa)	3.50 cfm (295 Pa)	4.90 cfm (298 Pa)	4.90 cfm (300 Pa)	4.60 cfm (297 Pa)	4.50 cfm (295 Pa)	5.50 cfm (295 Pa)	4.20 cfm (300 Pa)	5.20 cfm (295 Pa)	5.10 cfm (300 Pa)	

Project no.: RD-0100-A/B

APPENDIX L: LOG OF TESTING ACTIVITIES

Project no.: RD-0100-A/B

Modified ASTM E-514 Tests

No. 1	May 23, 1996
No. 2	June 27, 1996
No. 3	July 27, 1996
No. 4	September 4, 1996
No. 5	October 11, 1996
No. 6	November 14, 1996

Water Uptake Tube Tests

No.1	May 24, 1996
No.2	June 12, 1996
No.3	September 3, 1996

Air Infiltration Tests

No.1	May 21, 1996
No.2	June 26, 1996

Project no.: RD-0100-A/B

APPENDIX M: MONTHLY METEOROLOGICAL SUMMARIES



Environnement
Canada
Direction de
l'environnement
atmosphérique

Environment
Canada
Atmospheric
Environment
Branch

SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Montreal - Dorval (AUTO)

Avril 1996

April 1996

LAT 45° 28N LONG 73° 45W ALTITUDE 35 ELEVATION 35				METRES (NMM) METRES (ASL)			HEURE NORMALE UTILISÉE STANDARD TIME USED			DE L'EST Eastern								
DATE	TEMPÉRATURE TEMPERATURE			DEGREES-JOURS DEGREE-DAYS			PRECIPITATIONS PRECIPITATION			VENTS WINDS			HEURES HOURS					
	MAXIMALE MAXIMUM °C	MÉDIALE MINIMUM °C	MÉTIENNE MEAN °C	DE CHAUFFE HEATING Base 18 °C	DE CROISSANCE GROWING Base 5 °C	DE RÉFRIGÉRATION COOLING Base 18 °C	MAXIMALE MAXIMUM % %	MÉDIALE MINIMUM %	GRANDE THUNDERSTORM PLUIE (HAUTEUR) RAINFALL	NEIGE (HAUTEUR) SNOWFALL	PRECIP. TOTAL TOTAL PRECIP.	VITESSE MOYENNE AVERAGE SPEED km/h	DIRECTION DOMINANTE PREVAILING DIRECTION	VITESSE MOYENNE MAX SUR 2 MIN & DIRECTION MAX 2 MIN MEAN SPEED & DIRECTION				
1	10.0	-2.4	3.8	14.2			81	27		5.2	3.4	8.6	1.0	NNE	NW	28	1.8	
2	5.7	-2.5	1.6	16.4			80	31		2.0	TR	2.0	1.0	NW	NW	22	11.8	
3	3.5	-5.2	-0.9	18.9			61	31						19.0	NW	NW	33	11.5
4	5.8	-7.7	-1.0	19.0			52	29						15.8	WNW*	W*	26	11.4
5	5.4	-2.8	1.3	16.7			58	40						12.5	W	W	20	4.3
6	6.7	-3.0	1.9	16.1			64	45		TR		TR		12.5	NE	NE*	22	4.4
7	5.9	1.6	3.8	14.2			74	49		0.4	TR	0.4	TR	11.7	E	NE*	19	0.2
8	4.1	0.3	2.2	15.8			77	57		0.8	3.0	5.0		7.0	E*	NNE	24	
9	5.1	-2.0	1.6	16.4			77	53		TR	2.2	2.2	1.0	6.3	NE	S	15	1.8
10	4.3	-1.7	1.3	16.7			78	55		2.8	0.4	3.2		18.8	N	NNE	30	0.1
11	12.7	1.4	7.1	10.9	2.1		70	37		0.5		0.5		23.5	W	W	39	6.5
12	12.8	0.4	6.6	11.4	1.6		74	23						14.6	N	NW	28	6.6
13	5.8	-1.5	2.2	15.8			75	25		4.8	3.0	7.8		15.5	NE	NNE	20	4.4
14	4.6	-2.6	1.0	17.0			78	66		3.2	4.0	7.6	TR	14.6	NNE	NNE	30	0.5
15	12.6	-2.8	4.9	13.1			79	44		6.0		6.0		18.4	ESE	SE*	31	11.3
16	5.9	2.1	4.0	14.0			81	73		35.5		35.5		20.8	ESE	SE	41	
17	6.2	0.3	3.3	14.7			79	60		10.5	5.0	15.5		21.9	W	W	39	0.2
18	12.3	-1.4	5.5	12.5	0.5		67	41						12.6	W	W	22	12.1
19	20.2	4.8	12.5	5.5	7.5		77	34	1	0.5		0.5		10.7	E	ESE	22	6.1
20	14.9	4.9	9.9	8.1	4.9		83	64		18.5		18.5		11.5	NNE	NE*	19	0.1
21	16.7	5.2	11.0	7.0	6.0		82	56		1.0		1.0		22.6	SW	SW	37	6.9
22	17.7	2.8	10.3	7.7	5.3		100	47		9.5		9.5		9.8	SW*	SE	20	6.7
23	12.2	4.7	8.5	9.5	3.5		100	82		5.5		5.5		12.7	W	W*	24	
24	8.1	-0.5	3.8	14.2			99	40		0.2	3.3	3.5		26.9	W	W	43	5.5
25	10.9	0.4	5.7	12.3	0.7		95	53		6.5		6.5		11.5	E	SSW*	17	2.7
26	14.3	8.4	11.4	6.6	6.4		99	68		13.0		13.0		10.2	SSE	W*	19	
27	10.3	-0.1	5.1	12.9	0.1		81	53		1.0	TR	1.0		27.4	WSW	WSW	59	1.4
28	10.3	0.3	5.3	12.7	0.3		85	40						15.8	W	WSW*	30	9.5
29	13.8	0.4	7.1	10.9	2.1		82	35						11.3	ESE	ESE*	20	7.2
30	13.9	6.9	10.4	7.6	5.4		99	71		24.5		24.5		18.6	E	SW	31	
	Moy. 9.8	Moy. 0.3	Moy. 5.0	TOTAL 388.8	TOTAL 46.4		Moy. 79	Moy. 47	TOTAL 1	TOTAL 151.9	TOTAL 24.3	TOTAL 177.8	Moy. 15.3	DÉTERMINANTE W	MÉDIALE WSW	TOTAL 59	TOTAL 135.0	
NORMALE	10.7	.6	5.7	370.1	65.7	4							74.8	PREVAILING	MAXIMUM		182.5	

SOMMAIRE DE DEGRÈS-JOURS/DEGREE-DAY SUMMARY

AU-DESSUS DE 1°C BELOW 1°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMAL NORMAL	AU-DESSUS DE 5°C ABOVE 5°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMAL NORMAL	MM			MM		
								0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	10.0 OU PLUS	10.0 OU PLUS
TOTAL DU MOIS TOTAL FOR MONTH	388.8	427.7	370.1	TOTAL DU MOIS TOTAL FOR MONTH	46.4	44.5	65.7	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	4426.1	4022.4	4364.0	ACCUMULÉS DEPUIS LE 1ER AVRIL ACUMULATED SINCE APRIL 1	46.4	44.5	65.7	21	19	17	5	8	7

Données non contrôlées/Data not validated

Les précipitations ont un seuil mesurable de 1,0 mm
Measurable threshold of precipitation is 1,0 mm

1. Journée climatologique/Climatological Day

2. Normale/Normal 1961-1990

3. TR=Trace

4 M=Manquant/Missing E=Estime/Estimated

5 Pas de valeur/No entry=Pas d'événement/No occurrence

6 C=Calme/Calm

Canada

RELEVÉS COMPARATIFS À:
COMPARATIVE RECORDS AT:

Montreal - Dorval (AUTO)

Avril 1996

April 1996

	CE MOIS-CI THIS MONTH				ANNÉE PRÉCÉDENTE PREVIOUS YEAR		NORMALE NORMAL	RECORD POUR LE MOIS RECORD FOR THE MONTH						
	RELEVE VALUE		JOUR DAY	RELEVE VALUE		JOUR DAY		MAXIMUM ABSOLU HIGHEST EVER			MINIMUM ABSOLU LOWEST EVER			NO D'ANNÉES NO OF YEARS
	RELEVE VALUE	JOUR DAY	ANNEE YEAR	RELEVE VALUE	JOUR DAY	ANNEE YEAR		RELEVE VALUE	JOUR DAY	ANNEE YEAR	RELEVE VALUE	JOUR DAY	ANNEE YEAR	
TEMPÉRATURE MAXIMALE HIGHEST TEMPERATURE (MAXIMUM)	°CELSIUS	20.2	19	16.4	19			30.0	27	1990				55
TEMPÉRATURE MINIMALE LOWEST TEMPERATURE (MINIMUM)	°CELSIUS	-7.7	4	-14.5	5						-15.0	4	1954	55
TEMPÉRATURE MENSUELLE MOYENNE MEAN MONTHLY TEMPERATURE	°CELSIUS	5.0		3.7		5.7		9.4		1987	1.9		1943	55
HAUTEUR TOTALE MENSUELLE DE PLUIE TOTAL MONTHLY RAINFALL	Millimètres (mm) Millimètres (mm)	151.9		69.2		62.6		122.4		1991	17.4		1992	55
HAUTEUR TOTALE MENSUELLE DE NEIGE TOTAL MONTHLY SNOWFALL	centimètres (cm) centimètres (cm)	24.3		1.0		10.9		41.6		1993	0.0		1991	55
PRÉCIPITATION TOTALE MENSUELLE TOTAL MONTHLY PRECIPITATION	Millimètres (mm) Millimètres (mm)	177.8		70.2		74.8		150.0		1983	20.7		1966	55
Nombre de jours avec précipitation mesurable No of days with measurable precipitation		22		12		13		19		1983	7		1975	55
Hauteur de pluie maximale en une journée Greatest rainfall in one day	Millimètres (mm) Millimètres (mm)	35.5	16	18.0	28			40.4	21	1991				55
Hauteur de neige maximale en une journée Greatest snowfall in one day	centimètres (cm) centimètres (cm)	5.0	17	1.0	15			31.2	1	1993				55
Précipitation maximale en une journée Greatest precipitation in one day	Millimètres (mm) Millimètres (mm)	35.5	16	18.0	28			40.4	21	1991				55
Hauteur de pluie enregistrée en Maximum rainfall recorded in														
5 minutes	Millimètres (mm) Millimètres (mm)							4.6	27	1994				54
10 minutes	Millimètres (mm) Millimètres (mm)							4.8	4	1963				54
15 minutes	Millimètres (mm) Millimètres (mm)							6.6	4	1963				54
30 minutes	Millimètres (mm) Millimètres (mm)							8.4	4	1963				54
60 minutes	Millimètres (mm) Millimètres (mm)							10.2	4	1963				54
24 heures consécutives Consecutive hours	Millimètres (mm) Millimètres (mm)							42.9	18/19	1969				55
Vitesse moyenne du vent (km/h) Mean wind speed (km/h)		15.3		15.7		16.0		22.1		1973	11.7		1971	55
Vitesse maximale (moyenne sur 2 min.) (km/h) Maximum speed (2 min. mean) (km/h)	WSW 59	27		W 59	4			W 70	3	1977				55
Pointe du vent maximale (km/h) Maximum gust speed (km/h)	WSW 74	27		W 74	4			WSW 106	19	1975				55
Total des heures d'insolation Total hours of sunshine		135.0		156.8		182.5		223.6		1986	102.3		1983	26
Pression moyenne à la station (hPa) Mean station pressure (hPa)		100.73		M		100.96		101.56		1954	100.42		1953	54
Pression maximale à la station (hPa) Greatest station pressure (hPa)		102.02	29	M				103.50	28	1966				54
Pression minimale à la station (hPa) Least station pressure (hPa)		98.94	25	M							97.22	2	1970	54

DONNÉES CLIMATOLOGIQUES CE MOIS-CI POUR LES 10 DERNIERES ANNÉES
CLIMATOLOGICAL DATA THIS MONTH FOR THE PAST 10 YEARS

ANNEE YEAR	TEMP. MAXIMALE MAXIMUM TEMP.	TEMP. MINIMALE MINIMUM TEMP.	TEMP. Moyenne MEAN TEMP.	HAUTEUR DE PLUIE RAINFALL	HAUTEUR DE NEIGE SNOWFALL	PRECIP. TOTALE TOTAL PRECIP.	VITESSE MOYENNE DES VENTS MEAN WIND SPEED	VITESSE MAXIMALE DES VENTS MEAN WIND SPEED	HEURES INSOLATION SUNSHINE HOURS	DÉGRES-JOURS DE CHAUFFE HEATING DEGREE-DAYS	DÉGRES-JOURS DE CROISSANCE GROWING DEGREE-DAYS	DÉGRES-JOURS DE RÉFRIGÉRATION COOLING DEGREE-DAYS	ASN S.A.S.
1987	27.5	-5.2	9.4	34.2	2.0	36.8	15.8	SE 43	208.5	260.4	146.2	2.8	201.2
1988	17.6	-2.0	6.7	78.8	TR	78.8	15.1	NE 43	124.7	339.8	58.4		166.6
1989	19.4	-4.8	4.8	49.0	3.6	52.0	12.3	W 41	187.8	395.5	33.4		205.0
1990	30.0	-5.8	6.4	84.1	16.0	100.1	17.3	WSW 56	165.9	352.2	97.8	5.1	198.4
1991	21.5	-4.4	7.8	122.4	TR	122.4	13.9	NE 63	162.8	305.0	98.4		197.0
1992	24.3	-8.3	4.9	17.4	23.8	41.2	13.9	W 37	193.1	392.4	58.1		206.5
1993	22.2	-6.4	5.9	110.6	41.6	152.2	12.7	NE 54	114.3	364.2	64.6		242.0
1994	22.2	-8.5	5.3	74.4	24.2	98.6	15.7	WSW 48	156.9	380.2	53.0		274.4
1995	16.4	-14.5	3.7	69.2	1.0	70.2	15.7	W 59	187.2	427.7	44.5		186.7
1996	20.2	-7.7	5.0	151.9	24.3	177.8	15.3	WSW 59	135.0	388.8	46.4		213.6

DATE	Montreal - Dorval (AUTO)																				Avril 1996			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	10	36	30	12	9	-14	2	15	21	36	66	69	84	98	77	73	73	44	22	6	2	4	4	6
2	4	6	5	14	11	1	-21	-3	6	11	17	26	37	43	48	48	49	44	33	4	-7	5	-19	-1
3	-7	-16	-15	-32	-43	-48	-38	-15	-4	-4	-2	13	21	24	29	27	25	20	11	3	-5	-14	-32	-1
4	-36	-42	-49	-54	-61	-67	-69	-48	-38	-26	-11	4	17	28	44	48	54	46	25	25	23	15	24	5
5	-4	-2	-6	-13	-21	-26	-26	-15	-9	-1	15	17	27	34	45	47	50	35	28	23	14	9	2	-
6	-16	-9	-11	-12	-18	-20	-29	-26	-22	-11	-1	15	28	48	56	59	59	51	43	42	42	45	48	5
7	53	47	44	44	41	32	28	33	32	34	44	44	38	47	44	48	51	57	53	53	39	35	41	2
8	17	19	17	11	11	11	11	10	9	22	23	29	37	28	24	35	34	23	12	15	11	11	7	-
9	5	4	4	3	2	3	5	2	2	3	10	24	34	32	45	46	37	44	40	31	32	16	22	6
10	-3	-10	-12	-8	-7	-6	-2	4	15	30	33	30	34	26	40	40	32	27	21	19	14	16	15	3
11	35	34	30	28	24	24	24	44	60	81	99	114	109	96	107	104	100	96	85	74	60	63	68	5
12	55	55	53	48	46	43	50	49	57	67	85	97	114	114	114	114	102	91	72	55	42	48	26	1
13	9	5	-1	-4	-9	-12	-15	-13	-1	5	24	32	43	56	49	53	54	52	51	50	53	38	11	1
14	13	12	18	19	20	21	25	25	19	15	7	8	12	14	19	25	37	42	42	39	20	7	20	-
15	0	-19	-7	-9	-9	-10	-11	27	32	36	37	49	59	91	98	113	124	119	113	113	111	107	83	6
16	58	48	48	47	43	42	42	45	42	47	48	51	57	58	58	57	57	56	53	48	41	37	29	2
17	25	21	9	9	6	4	5	7	11	23	31	39	43	51	55	58	51	45	36	25	22	19	18	1
18	16	16	12	8	-3	-9	6	17	25	44	55	65	79	93	106	112	115	119	103	81	79	72	69	6
19	72	68	71	66	50	52	58	76	97	114	135	155	170	191	199	186	174	156	149	135	114	100	91	9
20	76	69	60	60	54	58	56	66	78	95	96	89	100	104	112	142	142	144	128	113	133	135	145	11
21	106	109	114	118	118	117	121	117	114	117	135	126	140	158	152	163	154	149	143	130	123	111	97	7
22	70	52	59	53	32	45	61	72	84	98	116	140	153	163	163	160	153	141	132	117	116	116	106	1
23	97	96	93	92	94	92	88	96	91	93	100	100	113	116	109	114	111	105	103	98	94	87	84	7
24	66	47	36	29	24	19	9	-2	-2	-2	1	19	48	66	72	75	71	73	71	59	49	45	39	3
25	33	21	13	11	7	11	11	24	38	54	60	65	76	87	96	106	104	88	83	76	71	79	82	8
26	96	100	109	112	115	88	122	130	138	139	137	130	118	114	114	115	111	110	109	104	101	100	97	9
27	96	102	87	48	27	20	18	15	15	27	26	33	51	40	39	43	47	41	38	34	15	15	26	:
28	29	23	22	13	11	6	14	27	33	50	58	61	65	76	91	96	99	91	95	77	76	50	58	6
29	40	34	39	26	19	26	41	60	86	92	107	126	127	131	128	124	112	112	92	76	76	75	62	3
30	80	80	84	86	88	89	93	97	101	105	102	106	104	122	134	132	112	101	100	96	83	74	7	-

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

		Montreal - Dorval (AUTO)																						Avril 1996 April 1996						
		Heure normale locale: Est Local standard time: Eastern																						Rafale max Peak Gust						
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		hours time	jour day			
1	C	NE	ENE	C	NE	NNE	NNE	NE	NNE	NNE	N	NNE	NE	NNE	N	NNW	NW	NW	WNW	WSW	C	W	W	NW	37	18	1			
2	0	7	6	0	11	4	7	9	15	15	17	22	19	15	24	15	15	28	19	6	4	0	7	7	WNW	35	13	2		
3	WNW	NNW	NW	N	N	NNW	NW	NNW	NNW	N	N	NW	WNW	WNW	W	NW	W	NW	NNW	NNW	C	WNW	NNW	NNW	46	14	3			
4	6	6	6	13	11	9	11	13	13	19	13	17	17	15	20	22	19	19	15	9	6	4	0	4	WNW	37	14	4		
5	NNW	N	N	NW	NW	NNW	NNW	NNW	NNW	W	WNW	W	W	WNW	W	WNW	W	WNW	NNW	NNW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	
6	6	N	N	NNE	N	NNE	NNE	NNE	NNE	N	NNE	N	N	N	W	WSW	SSW	WNW	WNW	W	W	W	W	W	W	W	W	W	W	W
7	9	9	13	11	11	11	11	11	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	
8	E	NE	E	C	C	NNE	NNE	NNE	NNE	N	N	N	N	N	E	ESE	E	NE	NNE	NNE	C	E	E	E	E	E	E	E	E	E
9	6	6	7	0	0	9	11	11	11	4	11	9	4	4	7	4	7	17	24	19	0	4	4	6	6	0	0	0	0	
10	C	NE	C	N	NE	SE	SE	SE	SE	W	W	W	W	W	WSW	WSW	NW	C	S	SSE	NE	NE	N	N	NNE	NNE	NNE	NNE	NNE	
11	0	4	0	6	4	4	4	4	7	9	4	6	7	7	0	0	0	15	6	11	11	7	7	7	6	6	6	6	6	
12	NNE	NNE	N	N	NNE	NNE	NNE	NNE	NNE	N	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
13	9	9	11	9	13	17	13	15	13	19	15	17	7	17	19	11	19	11	13	19	19	13	11	19	13	13	13	13	13	
14	11	17	13	6	6	9	4	7	7	7	13	15	17	24	28	19	24	22	20	17	13	19	13	15	15	15	15	15	15	
15	15	17	20	17	13	15	13	15	13	19	15	17	7	17	19	11	19	11	13	19	19	13	11	19	13	13	13	13		
16	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE										
17	19	13	17	15	15	15	17	24	30	30	31	31	31	31	39	31	31	24	28	24	20	22	17	15	50	11	11	11		
18	WSW	W	WSW	WNW	W	WNW	W	WSW	WSW	W	NW	N	NNW	NW	NW	NW	NW	N	N	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	
19	11	17	13	6	6	9	4	7	7	7	13	15	17	24	28	19	24	22	20	17	13	19	13	15	15	15	15	15		
20	15	17	20	17	13	15	13	15	13	19	15	17	7	17	19	11	19	11	13	19	19	13	11	19	13	13	13	13		
21	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NNE	NNE	NNE	NNE										
22	19	13	17	15	15	15	17	24	30	30	31	31	31	31	39	31	31	24	28	26	22	26	26	26	26	26	26	26		
23	WSW	S	SW	SW	W	C	SE	SW	SSW	SW	S	ESE	SE	SE	SE	SE	SE	SE												
24	7	9	9	6	0	6	7	7	9	6	6	6	19	17	20	19	15	11	17	17	15	11	17	15	15	15	15	15		
25	NNW	NNW	W	WSW	W	WSW	W	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
26	7	6	9	7	11	11	7	15	19	9	0	0	0	0	6	7	11	17	17	15	22	20	15	26	17	20	20	20	20	
27	7	9	9	6	0	6	7	7	9	6	6	6	19	17	20	19	15	11	17	17	15	11	17	15	15	15	15	15		
28	WSW	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	W	WSW	W	WSW	W																
29	11	20	15	13	17	15	17	17	19	20	19	17	30	20	30	24	22	15	17	11	17	11	17	11	17	11	17	11		
30	C	S	S	S	S	SSW	SSW	SSW	SSW	C	SSW	C	S	SSE	SSE	SE	SE	SE	SE	SE	SE									
31	0	7	6	7	6	4	0	6	0	6	11	9	20	15	17	20	19	17	19	13	15	9	11	11	20	20	20	20		
32	ESE	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
33	9	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13		

Avis/Note

C= Calme /Calm

M= Manquant /Missing

Points de rosée horaires Hourly dew points		Montreal - Dorval (AUTO)															Avril 1996 April 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	-95	-105	-110	-92	-90	-91	-81	-75	-76	-78	-86	-84	-81	-76	-63	-59	-30	-15	-28	-28	-27	-25	-24	
2	-27	-24	-25	-20	-38	-54	-72	-65	-71	-81	-85	-83	-86	-88	-90	-109	-111	-112	-117	-110	-126	-121	-108	
3	-110	-104	-117	-106	-115	-117	-101	-87	-99	-109	-120	-130	-113	-122	-116	-126	-123	-124	-136	-137	-139	-138	-152	
4	-154	-154	-159	-155	-157	-155	-151	-155	-159	-148	-133	-134	-125	-126	-115	-115	-110	-107	-113	-111	-111	-102	-95	
5	-101	-104	-104	-108	-108	-106	-106	-111	-109	-108	-102	-97	-92	-87	-80	-78	-74	-80	-80	-77	-81	-81	-84	
6	-87	-89	-88	-89	-88	-90	-95	-94	-95	-91	-89	-82	-72	-61	-53	-45	-39	-34	-32	-28	-20	-16	-20	
7	-30	-30	-31	-35	-37	-32	-28	-30	-32	-31	-27	-27	-22	-17	-11	-14	-18	-40	-34	-44	-31	-24	-33	
8	-25	-24	-27	-27	-25	-26	-24	-27	-26	-24	-23	-22	-16	-29	-16	-22	-43	-34	-29	-23	-28	-29	-30	
9	-31	-31	-33	-33	-33	-34	-34	-34	-33	-33	-29	-20	-17	-34	-33	-41	-34	-35	-32	-31	-37	-46	-46	
10	-47	-49	-54	-51	-49	-47	-46	-46	-43	-46	-49	-28	-19	-17	-14	-23	-26	-22	-20	-22	-18	-16	-24	
11	-27	-27	-32	-42	-46	-49	-49	-44	-29	-22	-20	-16	-23	-35	-32	-24	-38	-37	-37	-21	-5	12	10	
12	3	-1	-4	-3	-1	6	6	11	16	7	5	-6	-32	-42	-50	-98	-96	-111	-104	-110	-110	-105	-105	
13	-107	-114	-125	-123	-139	-149	-142	-145	-140	-133	-129	-132	-126	-125	-121	-131	-121	-108	-105	-103	-104	-56	-28	
14	-28	-27	-22	-21	-18	-15	-11	-10	-15	-19	-28	-28	-23	-22	-16	-15	-10	-14	-15	-16	-25	-33	-23	
15	-35	-59	-41	-46	-43	-45	-43	-12	-27	-16	-12	-10	-13	1	-3	2	5	2	8	3	-7	15	18	
16	14	7	3	5	6	7	7	9	9	11	13	16	22	24	24	26	27	24	22	19	10	7	-2	
17	-9	-13	-26	-24	-27	-29	-27	-25	-21	-10	-3	4	7	12	9	6	-11	-22	-30	-41	-46	-47	-47	
18	-50	-54	-53	-55	-61	-62	-54	-53	-50	-34	-28	-15	-5	-7	-5	-7	-2	-10	-20	-26	-32	-31	-35	
19	-43	-41	-42	-32	-22	-23	-27	-27	-26	-12	2	10	12	32	37	51	59	80	82	73	61	55	52	
20	34	23	18	14	11	13	13	17	27	30	42	49	60	63	78	93	98	102	96	81	94	97	110	
21	79	82	85	89	87	78	80	60	55	58	68	55	66	77	69	75	69	67	62	56	45	36	26	
22	14	8	15	9	-12	0	13	29	47	40	39	30	52	55	63	59	74	94	99	101	103	109	106	100
23	97	96	93	92	94	92	88	91	83	81	76	80	84	87	93	89	91	90	88	87	81	76	73	
24	63	36	23	13	1	-11	-18	-6	-6	-5	0	6	4	6	-16	-29	-45	-54	-30	-42	-25	16	17	
25	9	1	-2	-1	-5	-4	-3	3	4	13	19	0	11	5	12	13	16	56	62	64	72	75	77	
26	79	77	72	74	72	78	73	72	86	93	96	91	100	103	105	108	102	105	100	102	98	97	93	
27	89	86	47	12	-19	-28	-32	-53	-63	-51	-59	-51	-22	-41	-48	-44	-37	-32	-22	-37	-30	-38	-27	
28	-21	-18	-12	-18	-11	-16	-29	-32	-32	-28	-9	-18	-24	-16	-18	-29	-29	-30	-28	-15	-11	-3	-20	
29	1	-4	-16	-19	-21	-16	-23	-9	-17	-30	-15	-3	-24	-18	-19	-2	-5	18	39	43	45	46	45	
30	50	51	44	44	44	46	47	49	53	73	85	91	90	94	100	102	119	107	100	97	92	64	53	

Unités / Units: 0.1 °C

M = Manquant / Missing

Humidités relatives horaires Hourly relative humidities		Montreal - Dorval (AUTO)															Avril 1996 April 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	45	35	35	46	47	36	54	51	49	44	35	32	29	27	38	37	38	39	76	78	80	80	81	80
2	80	80	80	78	70	66	68	63	56	50	47	44	40	38	36	31	32	31	34	40	45	37	45	50
3	45	51	46	56	57	58	61	58	49	45	40	33	36	33	31	32	32	33	35	38	44	41	44	36
4	39	41	42	45	46	49	52	43	38	38	39	35	34	31	30	29	29	32	35	36	41	41	41	44
5	48	46	47	48	51	54	54	48	47	44	41	42	41	41	40	40	43	45	47	49	51	53	55	55
6	58	54	56	56	59	59	60	59	57	54	51	48	48	45	45	47	49	54	58	60	64	61	53	53
7	55	57	58	56	57	63	67	63	63	62	60	61	65	63	67	64	61	50	53	49	60	65	58	62
8	74	73	72	76	77	76	77	76	77	72	72	69	68	66	75	66	77	74	76	75	75	76	75	75
9	77	77	76	77	77	76	75	77	77	77	75	73	69	62	57	53	60	56	59	64	60	63	60	71
10	72	75	73	73	73	74	72	69	65	57	55	66	68	73	68	63	66	70	73	75	77	78	74	66
11	64	64	64	60	60	58	58	53	53	48	43	40	40	39	37	41	38	39	42	51	63	70	70	70
12	69	69	68	69	70	73	73	74	72	70	58	53	43	36	33	31	23	25	29	34	31	36	41	41
13	41	40	39	40	36	34	37	36	34	35	31	29	28	26	28	25	27	30	31	32	31	50	75	75
14	74	75	75	75	76	77	77	78	78	77	77	77	77	78	75	75	71	67	72	75	73	71	71	71
15	77	74	78	76	78	77	79	75	65	69	70	66	60	53	49	46	44	48	47	44	45	62	70	70
16	73	75	73	74	77	78	78	77	79	77	78	78	79	79	79	80	81	80	80	81	80	80	79	79
17	78	78	77	79	78	79	79	79	78	78	77	76	72	69	64	64	62	62	62	61	62	62	62	62
18	61	60	62	63	65	67	64	60	58	57	57	55	50	46	44	44	41	42	47	45	49	49	48	48
19	44	46	44	49	60	58	54	48	42	42	40	37	34	35	41	41	47	61	64	66	70	74	73	73
20	75	75	74	72	74	73	74	71	70	64	69	76	76	76	80	72	75	76	81	77	78	80	83	
21	83	83	82	82	81	77	76	68	67	67	64	62	61	59	58	56	57	58	61	59	60	61	66	
22	67	73	73	73	73	71	74	77	67	59	47	51	49	52	51	39	73	80	90	92	95	95	98	
23	100	100	100	100	100	97	95	92	85	87	82	80	85	87	90	92	93	95	96	95	98	95	98	
24	98	93	91	89	85	80	82	97	97	98	99	91	73	65	53	48	43	40	49	48	59	81	85	
25	84																							



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Environment
Branch

SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Montreal - Dorval (AUTO)

Mai 1996

May 1996

LAT 45° 28N LONG 73° 45W				ALTITUDE ÉLEVATION 35	METRES (NMM) MÈTRES (ASL)	HEURE NORMALE UTILISÉE STANDARD TIME USED			DE L'EST Eastern									
DATE	TEMPÉRATURE TEMPERATURE			DEGRÉS-JOURS DEGREE-DAYS		HUMIDITÉ REL. REL. HUMIDITY		PRÉCIPITATIONS PRECIPITATION		NEIGE AU 40L SNOW ON GROUND	VENTS WINDS			VITESSE MOYENNE AVG SPEED km/h	DIRECTION DOMINANTE PREVAIL DIRECTION	VITESSE MOYENNE MAX SUR 2 MIN A DIRECTION km/h	MAX 2 MIN MEAN SPEED & DIRECTION km/h	INSOLATION EFFECTIVE BRIGHT SUNSHINE HOURS
	MAXIMALE MAXIMUM °C	MINIMALE MINIMUM °C	MOYENNE MEAN °C	DE CHAUFFÉ HEATING Base 18 °C	DE CROISSANCE GROWING Base 5 °C	DE RÉFRIGÉRATION COOLING Base 18 °C	MAXIMALE MAXIMUM %	MINIMALE MINIMUM %	ORAGE THUNDER STORM	PLUIE (HAUTEUR) RAINFALL mm	NEIGE (HAUTEUR) SNOWFALL mm	PRECIP. TOTAL TOTAL PRECIP. mm						
1	16.7	4.8	10.8	7.2	5.8	83	42		0.5			0.5	20.0	SW	SW	35	9.9	
2	12.6	4.4	8.5	9.5	3.5	82	40		TR			TR	21.4	SW*	W	37	12.0	
3	18.4	1.8	10.1	7.9	5.1	80	31		TR			TR	10.3	SW	S	24	10.5	
4	16.8	6.3	11.6	6.4	6.6	82	38		TR			TR	7.4	NE	NNE	20	8.4	
5	14.2	4.4	9.3	8.7	4.3	60	24		TR			TR	14.9	N*	NNE*	22	13.1	
6	14.1	3.7	8.9	9.1	3.9	64	31						11.2	W	SSW*	22	11.2	
7	18.9	4.1	11.5	6.5	6.5	66	25						13.7	WSW	WSW	24	12.3	
8	19.4	6.7	13.1	4.9	8.1	68	21						10.9	S	W	22	10.4	
9	21.6	9.9	15.8	2.2	10.8	66	37						11.8	SSE	SSE	24	1.1	
10	14.0	9.8	11.9	6.1	6.9	100	59	15.0		15.0			11.7	NE	NE*	24		
11	10.9	5.8	8.4	9.6	3.4	98	88		13.5			13.5	26.4	NNE	NNE*	31		
12	5.9	1.8	3.9	14.1		97	74	29.5	TR	29.5			24.0	N	NNE	41		
13	10.5	2.4	6.5	11.5	1.5	82	36						20.4	W	WSW	35	7.4	
14	14.6	2.9	8.8	9.2	3.8	85	43		TR			TR	17.8	SW	SW*	28	11.1	
15	19.0	5.8	12.4	5.6	7.4	88	27		TR			TR	9.6	SSW	SSW	19	13.3	
16	19.3	8.3	13.8	4.2	8.8	92	27		0.5			0.5	13.7	SSE	SSE	37	4.2	
17	19.9	9.6	14.8	3.2	9.8	98	45						7.8	S	SSW*	15	10.9	
18	22.3	12.3	17.3	0.7	12.3	98	46	1	13.5			13.5	16.9	SE	SSE	37	3.9	
19	24.6	14.5	19.6	14.6	1.6	100	68	1	1.5			1.5	11.8	S	ESE	20	2.6	
20	26.2	16.3	21.3	16.3	3.3	97	70	1	10.5			10.5	18.3	SW	WSW	30	7.1	
21	24.7	13.5	19.1		14.1	89	43		0.5			0.5	20.6	WSW	WSW	41	10.1	
22	22.3	10.7	16.5	1.5	11.5	92	41		0.5			0.5	17.1	SW	W*	33	11.7	
23	20.2	8.9	14.6	3.4	9.6	83	32		TR			TR	17.5	W	N	28	11.9	
24	16.4	6.0	11.2	6.8	6.2	53	29						18.8	N	N*	31	13.9	
25	15.7	1.6	8.7	9.3	3.7	83	35						15.3	WNW	WNW	35	13.2	
26	19.9	2.1	11.0	7.0	6.0	90	23						11.6	W	W	26	12.2	
27	20.0	4.1	12.1	5.9	7.1	77	27						9.0	N*	SW*	15	13.2	
28	22.3	6.9	14.6	3.4	9.6	75	32		TR			TR	13.1	SW	NNE	28	9.2	
29	12.1	1.0	6.6	11.4	1.6	97	40		6.0			6.0	12.0	N	N	22	7.9	
30	19.3	5.1	12.2	5.8	7.2	85	42		0.5			0.5	13.5	N	N*	24	10.0	
31	24.4	6.3	15.4	2.6	10.4	90	23						19.1	WSW	W*	31	13.9	
	MOY. 18.0	MOY. 6.5	MOY. 12.3	TOTAL MEAN	TOTAL MEAN	MOY. 226.4	TOTAL 6.0	MOY. 39	TOTAL 3	TOTAL 92.0	TOTAL 92.0	MOY. 15.1	DOMINANTE SW	MAXIMALE NNE*	41	TOTAL 276.6		
NORMALE	18.5	7.3	12.9	166.7	247.7	10.0			2	66.7	1.6	68.3		14.0	SW		228.7	

SOMMAIRE DE DEGRÉS-JOURS/DEGREE-DAY SUMMARY

AU-DESSOUS DE 1°C BELOW 1°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALS NORMAL	AU-DESSUS DE 1°C ABOVE 1°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALS NORMAL	JOURS AVEC PRÉCIPITATIONS TOTALES: DAYS WITH TOTAL PRECIPITATION:				JOURS AVEC CHUTES DE NEIGE: DAYS WITH SNOWFALL:			
								0.2 0.2 OU PLUS	1.0 1.0 OU PLUS	2.0 2.0 OU PLUS	5.0 5.0 OU PLUS	0.2 0.2 OU PLUS	1.0 1.0 OU PLUS	2.0 2.0 OU PLUS	10.0 10.0 OU PLUS
TOTAL DU MOIS TOTAL FOR MONTH	183.7	154.8	166.7	TOTAL DU MOIS TOTAL FOR MONTH	226.4	252.8	247.7	0.2 0.2 OU PLUS	1.0 1.0 OU PLUS	2.0 2.0 OU PLUS	5.0 5.0 OU PLUS	0.2 0.2 OU PLUS	1.0 1.0 OU PLUS	2.0 2.0 OU PLUS	10.0 10.0 OU PLUS
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	4609.8	4177.2	4530.7	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	272.8	275.8	313.4	12	7	6	5				

Données non contrôlées/Data not validated

Les précipitations ont un seuil mesurable de 1,0 mm

Measurable threshold of precipitation is 1,0 mm

1. Journée climatologique/Climatological Day

2. Normale/Normal 1961-1990

3. TR=Trace

4 M=Manquant/Missing E=Estimé/Estimated

5. Pas de valeur/No entry/Pas d'événement/No occurrence

6. C=Calme/Calm

Canada

RELEVÉS COMPARATIFS À:
COMPARATIVE RECORDS AT:

Montreal - Dorval (AUTO)

Mai 1996

May 1996

	CE MOIS-CI THIS MONTH				ANNÉE PRÉCEDENTE PREVIOUS YEAR		NORMAL NORMAL	RECORD POUR LE MOIS RECORD FOR THE MONTH						NO D'ANNÉES NO OF YEARS		
	RELEVE VALUE		JOUR DAY		RELEVE VALUE			MAXIMUM ABSOLU HIGHEST EVER			MINIMUM ABSOLU LOWEST EVER					
								ANNEE YEAR	RELEVE VALUE	JOUR DAY	ANNEE YEAR					
TEMPÉRATURE MAXIMALE HIGHEST TEMPERATURE (MAXIMUM)	*CELSIUS	26.2	20	26.4	31			33.9	19	1962				52		
TEMPÉRATURE MINIMALE LOWEST TEMPERATURE (MINIMUM)	*CELSIUS	1.0	29	-0.9	5							-4.4	2	1974	52	
TEMPÉRATURE MENSUELLE MOYENNE MEAN MONTHLY TEMPERATURE	*CELSIUS	12.3		13.1				12.9	16.4	1960		9.1		1967	52	
HAUTEUR TOTALE MENSUELLE DE PLUIE TOTAL MONTHLY RAINFALL	Millimètres (mm) Millimètres (mm)	92.0		81.5				66.7	175.1	1945		15.2		1982	52	
HAUTEUR TOTALE MENSUELLE DE NEIGE TOTAL MONTHLY SNOWFALL	centimètres (cm) centimètres (cm)							1.6	31.0	1963		0.0		1993	52	
PRÉCIPITATION TOTALE MENSUELLE TOTAL MONTHLY PRECIPITATION	Millimètres (mm) Millimètres (mm)	92.0		81.5				68.3	175.3	1945		15.2		1982	52	
Nombre de jours avec précipitation mesurable No of days with measurable precipitation		12		15				13	21	1983		4		1977	52	
Hauteur de pluie maximale en une journée Greatest rainfall in one day	Millimètres (mm) Millimètres (mm)	29.5	12	25.5	29				37.6	17	1945				52	
Hauteur de neige maximale en une journée Greatest snowfall in one day	centimètres (cm) centimètres (cm)	TR	12						21.8	10	1963				52	
Précipitation maximale en une journée Greatest precipitation in one day	Millimètres (mm) Millimètres (mm)	29.5	12	25.5	29				37.6	17	1945				52	
Hauteur de pluie enregistrée en Maximum rainfall recorded in:																
5 minutes	Millimètres (mm) Millimètres (mm)								15.5	22	1945				49	
10 minutes	Millimètres (mm) Millimètres (mm)								15.7	22	1945				49	
15 minutes	Millimètres (mm) Millimètres (mm)								16.3	22	1945				49	
30 minutes	Millimètres (mm) Millimètres (mm)								18.0	22	1983				49	
60 minutes	Millimètres (mm) Millimètres (mm)								22.0	22	1983				49	
24 heures consécutives Consecutive hours	Millimètres (mm) Millimètres (mm)								42.9	18-19	1969				52	
Vitesse moyenne du vent (km/h) Mean wind speed (km/h)		15.1		13.9				14.0	20.0	1956		9.3		1968	41	
Vitesse maximale (moyenne sur 2 min.) (km/h) Maximum speed (2 min. mean) (km/h)	NNE 41	12	SSE 44	14				WSW 72	9	1964					52	
Pointe du vent maximale (km/h) Maximum gust speed (km/h)	NNE 59	12	WNW 63	6				W 123	22	1945					52	
Total des heures d'insolation Total hours of sunshine	276.6		244.8					228.7	331.2	1977		166.2		1976	22	
Pression moyenne à la station (hPa) Mean station pressure (hPa)	101.09		100.87					100.98	101.45	1992		100.62		1985	52	
Pression maximale à la station (hPa) Greatest station pressure (hPa)	102.64	7	102.25	28					103.32	29	1970				52	
Pression minimale à la station (hPa) Least station pressure (hPa)	99.17	19	99.54	17								98.51	19	1976	52	

DONNÉES CLIMATOLOGIQUES CE MOIS-CI POUR LES 10 DERNIÈRES ANNÉES

CLIMATOLOGICAL DATA THIS MONTH FOR THE PAST 10 YEARS

ANNÉE YEAR	TEMP. MAXIMUM TEMP.	TEMP. MINIMUM TEMP.	TEMP. MOYENNE MEAN TEMP.	HAUTEUR DE PLUIE RAINFALL	HAUTEUR DE NEIGE SNOWFALL	PRECIP. TOTALE PRECIP.	VITESSE MOYENNE DES VENTS MEAN WIND SPEED	VITESSE MAXIMALE DES VENTS MEAN WIND SPEED	HEURES D'INSOLATION SUNSHINE HOURS	DÉGRES-JOURS DE CHAUFFE HEATING DEGREE-DAYS	DÉGRES-JOURS DE CROISSANCE GROWING DEGREE-DAYS	DÉGRES-JOURS DE RÉFRIGÉRATION COOLING DEGREE-DAYS	A.S.H. S.A.S.
1987	30.4	0.5	13.0	55.0		55.0	12.2	W 37	224.7	173.6	248.1	18.7	201.2
1988	26.9	2.0	14.8	50.2		50.2	12.3	SW 39	220.5	108.7	304.9	10.6	166.6
1989	30.8	3.0	14.5	83.2	TR	83.2	13.6	SW 46	180.5	124.4	294.9	16.3	205.0
1990	25.7	2.2	11.6	79.2		79.2	15.3	SW 43	190.1	198.8	204.4	0.2	198.4
1991	30.9	2.2	15.0	91.2		91.2	13.1	WSW 37	238.5	112.5	310.5	20.0	197.0
1992	29.4	-0.7	13.2	56.4		56.4	12.7	WSW 46	282.6	157.6	255.1	9.7	206.5
1993	27.1	2.2	13.0	86.7		86.7	13.6	SW 41	227.1	154.6	249.3	0.9	242.0
1994	28.2	-1.3	12.2	100.4	TR	100.4	14.3	WSW 48	227.4	186.4	222.8	6.1	274.4
1995	26.4	-0.9	13.1	81.5		81.5	13.9	SSE 44	244.8	154.8	252.8	4.6	186.7
1996	26.2	1.0	12.3	92.0		92.0	15.1	NNE 41	276.6	183.7	226.4	6.0	213.6

Température horaire Hourly temperature		Montreal - Dorval (AUTO)																			Mai 1996 May 1996			
DATE		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
1		73	71	72	69	60	68	74	83	88	102	107	116	132	147	149	154	160	137	123	97	97	107	109
2		93	89	98	89	90	80	57	58	62	72	78	91	97	97	104	107	114	112	112	104	91	72	70
3		67	53	64	75	41	48	80	104	114	128	137	146	160	170	165	176	175	173	151	132	117	116	107
4		90	92	76	82	70	75	89	92	108	114	123	139	151	162	156	156	155	156	147	140	125	127	115
5		105	95	82	72	61	50	49	55	66	74	85	95	103	114	123	134	142	132	118	93	97	92	82
6		70	57	62	58	44	41	46	55	72	85	99	108	110	123	121	131	134	134	129	111	84	83	84
7		59	42	54	44	51	54	64	79	95	110	135	175	175	180	183	175	180	170	159	154	133	121	115
8		100	102	97	96	75	68	94	113	128	141	151	164	176	182	188	190	184	185	175	162	153	145	140
9		134	125	142	138	107	103	103	102	119	134	147	152	182	193	199	198	191	175	174	159	149	146	141
10		136	132	134	128	116	105	100	99	103	107	116	123	130	131	133	130	132	130	127	126	124	118	118
11		113	109	97	95	90	83	82	84	84	83	76	76	76	76	79	83	80	80	78	74	71	67	64
12		61	59	49	34	28	26	22	18	23	30	27	30	31	36	35	37	37	41	42	44	44	44	47
13		45	25	34	46	41	43	45	49	58	67	75	85	90	99	96	97	102	97	93	88	58	52	48
14		63	51	45	43	45	48	52	77	89	98	106	112	125	131	139	135	118	134	131	127	118	116	110
15		90	79	66	70	69	76	86	100	115	124	135	149	162	177	181	184	185	183	183	148	152	149	135
16		130	114	105	101	91	91	106	126	145	160	167	175	178	178	154	138	132	124	120	116	112	110	107
17		108	105	102	100	100	98	109	121	134	142	151	164	165	175	179	187	195	190	181	177	161	152	148
18		150	142	129	135	152	143	160	165	187	191	191	198	210	210	219	219	219	219	201	181	162	161	157
19		150	149	150	149	153	154	163	168	168	183	217	209	225	241	242	239	238	237	228	219	215	195	198
20		183	189	186	185	195	195	176	181	190	220	223	212	241	245	251	247	251	249	223	199	197	197	195
21		190	191	185	181	175	174	172	174	184	195	201	200	213	229	243	238	239	236	225	206	173	151	159
22		145	149	141	146	122	134	139	145	162	174	186	205	209	222	219	211	197	182	180	162	142	135	134
23		133	133	125	99	100	101	118	130	147	153	163	172	174	M	199	200	194	188	185	173	160	148	157
24		128	108	99	86	70	62	67	74	76	85	97	113	125	137	151	150	161	148	149	134	117	99	76
25		83	67	37	44	27	28	68	76	87	95	117	129	142	142	146	146	142	141	142	126	104	89	102
26		67	51	29	38	41	51	80	95	125	149	163	165	187	193	191	194	188	191	174	146	128	132	149
27		77	99	84	67	55	65	86	106	126	147	167	173	184	193	196	198	193	183	190	179	167	158	146
28		110	118	127	121	122	121	122	135	150	162	173	178	202	209	213	211	203	200	203	186	152	167	140
29		94	69	57	43	13	24	48	57	68	76	90	100	108	104	88	104	66	73	59	49	53	61	58
30		56	53	54	59	62	72	76	86	98	117	124	145	150	164	167	172	188	189	174	157	143	119	118
31		116	108	78	67	71	91	105	127	144	156	179	205	229	235	227	237	238	232	228	204	187	175	163

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

		Montreal - Dorval (AUTO)																						Mai 1996				
		Hourly winds (km/h)																						May 1996				
		Heure normale locale: Est																						Rafale max				
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	heure time	Peak Gust	year day	
1	SW	WSW	SW	SW	SSW	SSW	S	SSW	SW	SW	SW	SW	SW	SSE	SW	WSW	SW	S	SSW	S	S	WSW	WSW	WSW	WSW	WSW	WSW	WSW
2	S	S	SSW	WSW	SW	SW	W	W	W	W	W	WNW	WSW	W	SW	SW	SW	SW	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	
3	S	N	SE	E	C	N	ESE	SW	SW	SW	SW	WNW	SSW	W	SSW	C	S	SSE	SSE	S	SSW	WNW	SE	WNW	SE	WNW	SE	WNW
4	W	W	NW	C	C	NNE	NE	NE	NE	NE	NE	NNE	SE	SSE	S	SSW	SW	S	SE	S	SE	C	NE	NNE	NNE	NNE	NNE	NNE
5	NE	NNE	NNE	N	N	N	N	NNE	NNE	NE	NW	W	S	W	W	NW	NW	N	N	NE	NE	NE	NE	NE	NE	NE	NE	
6	NE	ESE	NE	NE	NNE	N	N	N	N	C	NNE	C	SW	SW	SSW	SSW	SSW	SW	W	W	WSW	W	W	W	W	W	W	
7	W	WSW	SW	SSW	WSW	WSW	WSW	SW	SW	SSW	SSW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW								
8	S	SW	SW	W	WSW	WSW	WSW	W	W	WSW	WSW	SSW	SW	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
9	C	C	NE	E	NNE	NNE	N	NNE	NNE	ESE	E	SE	SSE	M	SSE	WSW	S	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	
10	0	0	11	6	9	13	11	13	9	11	7	6	17	24	M	17	17	13	15	17	11	11	9	13	37	17	9	
11	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	
12	22	22	26	19	24	26	24	19	26	20	31	26	30	24	20	28	31	30	31	30	26	28	30	26	46	0	11	
13	NNE	N	NNE	NNE	N	N	N	N	N	N	N	N	NNW	N	NNW	NNW	NNW	NNW										
14	28	31	41	35	30	26	26	20	20	31	26	17	28	31	24	31	30	26	17	19	19	22	22	15	59	3	12	
15	NW	WNW	WSW	W	W	WNW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
16	15	6	9	13	13	17	19	24	24	26	30	28	33	35	31	31	31	24	22	19	11	7	7	13	46	14	13	
17	SW	SW	SSW	SW	SW	WSW	W	W	W	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
18	6	7	7	6	6	7	4	7	9	11	11	15	13	15	7	9	7	6	6	6	7	7	7	7	7	7	7	
19	SE	SSE	SSE	S	SSW	S	SW	WSW	SW	SW	SW	SW	SW	S	SSW	SE	SE	SE	ESE	ESE	NE	SE	SE	SE	SE	SE	SE	
20	15	11	11	6	11	7	17	11	11	13	13	13	13	11	11	13	19	17	20	7	19	15	17	6	6	54	19	19
21	S	SSE	SSE	S	SSW	S	SW	WSW	WSW	WSW	WSW																	
22	7	7	9	6	20	13	19	24	19	22	26	22	30	28	19	22	11	17	22	15	13	11	11	59	3	20		
23	SW	SW	SW	SW	WSW	WSW	WSW	WSW																				
24	9	6	9	4	6	11	15	17	17	15	19	31	33	31	33	28	28	28	28	15	11	6	7	7	7	50	14	22
25	N	11	11	9	9	11	17	17	17	13	15	20	7	M	22	20	24	26	20	17	11	11	26	26	46	0	23	
26	N	N	N	N	N	N	NNE	NNE	C	W	W	WSW	WSW	W	W	W	W	W	W	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	
27	26	28	31	22	22	22	24	19	15	0	4	13	19	28	31	19	28	20	19	24	19	13	15	17	41	13	24	
28	N	-- N	NW	NNW	NW	WNW	WNW	WNW	W	WNW	WNW	WNW	WNW															
29	13	15	15	15	9	7	17	17	13	26	24	20	28	28	35	31	20	19	17	11	6	6	4	4	44	14	25	
30	C	C	WSW	W	WSW	SW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
31	O	O	4	6	6	7	7	9	7	13	26	19	15	20	22	20	20	17	17	9	7	4	6	6	35	11	26	
32	N	N	N	N	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S	S	S	S	S	S	S	S	S	
33	4	7	7	6	7	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
34	S	SSW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SSW	SSW																	
35	6	6	7	6	9	9	4	7	4	11	7	9	17	11	17	13	13	13	13	13	13	13	13	13	13	13	13	
36	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
37	22	22	15	11	9	6	13	4	11	11	11	20	17	13	17	17	17	19	22	7	6	6	9	9	39	16	29	
38	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
39	15	13	13	11	13	17	15	15	13	24	24	15	13	13	13	13	13	13	13	13	13	13	13	13	13	13		
40	6	9	7	9	9	11	17	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	
41	WSW	SSW	WSW	WSW	WSW	WSW	SW	SSW	SSW	SSW	SSW																	
42	6	9	7	9	9	11	17	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	

Avis/Note

C= Calme /Calm

M= Manquant /Missing

Points de rosée horaires Hourly dew points												Montreal - Dorval (AUTO)										Mai 1996 May 1996								
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	26	23	20	19	20	19	19	31	31	26	25	33	29	27	21	40	45	30	44	64	70	62	56	56						
2	53	54	52	60	56	50	-4	-3	-8	-13	-11	0	-4	-8	-7	-19	-15	-18	-6	-2	13	8	9	2						
3	-3	-5	-3	-8	-11	-8	-8	8	11	23	22	23	27	48	14	10	7	2	39	67	71	72	74	61						
4	54	45	38	41	41	44	-18	-12	-1	23	21	25	35	34	43	37	13	35	39	44	63	66	69	3						
5	22	11	-14	-13	-24	-22	-27	-28	-26	-20	-18	-6	4	-37	-20	-33	-58	-66	-53	-57	-67	-65	-76	-68						
6	-67	-41	-65	-67	-32	-36	-39	-47	-56	-52	-49	-55	-37	-30	-29	-33	-27	-22	-15	-26	-29	-20	-10	-24						
7	-12	-19	-23	-16	-12	-5	6	0	2	16	16	5	-16	-19	-4	-3	-25	-28	-11	-29	-10	2	-9	6						
8	-1	4	2	5	12	13	28	34	45	53	50	60	49	31	-7	-39	-12	-8	-4	-11	19	17	29	8						
9	33	19	16	8	35	41	42	37	39	29	26	45	M	60	61	54	40	57	49	48	45	43	52	52						
10	57	58	56	81	74	84	87	95	101	106	113	117	121	125	128	128	125	124	126	123	117	115	112							
11	110	107	94	90	84	75	68	71	69	65	68	65	64	69	72	76	73	72	63	67	64	60	60	60						
12	57	54	39	24	20	20	16	14	17	22	20	24	23	25	25	23	23	19	21	20	22	15	5	12						
13	4	2	7	-13	-15	-38	-34	-35	-22	-24	-30	-22	-25	-13	-34	-35	-34	-36	-45	-53	-28	-20	-17	11						
14	14	13	15	12	3	1	3	7	14	24	18	21	32	26	33	13	44	29	19	24	27	20	13	38						
15	54	55	48	47	27	31	35	29	41	48	50	43	26	34	26	24	21	14	-9	19	1	3	3	-5						
16	-7	-3	3	11	14	23	37	36	52	31	35	8	-14	-1	31	81	90	90	90	89	90	91	90							
17	90	93	96	97	94	94	97	92	84	90	92	99	92	99	79	68	76	69	84	79	78	96	97	94						
18	84	91	93	83	75	80	90	98	100	83	99	89	102	93	108	97	97	109	130	139	148	150	151	149						
19	145	146	148	147	152	154	159	164	165	169	172	173	175	180	192	185	176	178	184	183	181	178	180	176						
20	174	179	174	180	182	186	166	166	169	187	186	179	190	196	192	195	192	196	203	178	181	180	183	176						
21	172	176	162	159	152	150	153	153	154	144	146	148	157	154	122	113	111	102	113	99	93	94	95	113						
22	118	124	120	109	109	116	116	114	115	116	115	116	108	85	85	93	76	65	79	71	83	88	85							
23	79	73	70	66	72	68	69	70	73	49	60	63	50	M	56	58	55	48	49	61	68	79	-9	-19						
24	-27	-34	-47	-57	-57	-51	-48	-41	-46	-52	-36	-22	-13	-18	-14	-22	-17	-13	-22	-36	-36	-25	-14	-31						
25	-27	-28	-32	-42	-40	-29	-32	-33	-22	-15	-8	-4	2	-4	0	-8	-8	-13	-8	-11	1	5	1	19						
26	17	25	8	23	22	20	42	30	36	-3	4	-6	29	-8	2	-15	-30	-13	-15	10	23	11	-23	-14						
27	13	17	17	18	16	27	37	40	40	51	29	15	16	18	16	13	1	7	10	10	16	41	57	65						
28	57	56	62	70	68	65	79	68	51	58	68	65	55	69	47	53	33	28	48	60	73	15	51	35						
29	-6	-53	-67	-59	-41	-43	-37	-28	-22	-4	-11	-3	-9	-4	36	26	54	44	43	45	47	46	54	50						
30	24	29	28	35	37	36	44	49	57	63	53	66	58	54	52	62	69	57	72	69	67	71	61							
31	59	77	63	51	55	75	85	86	96	102	106	108	55	51	21	21	16	29	34	61	59	44	33	17						

Unités / Units: 0.1 °C

M = Manquant / Missing

Humidités relatives horaires Hourly relative humidities												Montreal - Dorval (AUTO)										Mai 1996 May 1996								
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	72	71	69	70	75	71	68	70	67	59	57	57	50	44	42	46	46	48	58	80	83	74	70	75						
2	76	79	73	82	79	81	65	65	61	55	53	53	49	48	46	41	40	44	48	58	64	65	63							
3	61	66	62	56	69	67	54	51	49	49	46	43	41	44	36	33	32	31	47	65	73	74	80	75						
4	78	72	77	75	82	81	47	48	47	53	50	46	46	42	47	45	38	44	48	52	66	66	73	44						
5	56	56	51	55	54	60	58	55	52	51	48	49	50	34	37	31	24	25	30	34	31	32	32	35						
6	37	49	40	40	58	57	54	48	40	37	35	31	35	34	35	32	33	34	37	38	45	48	52	52						
7	60	64	58	65	64	66	66	57	52	52	44	32	27	26	28	30	25	26	31	28	37	44	42	53						
8	49	51	51	53	64	68	63	58	57	55	51	50	43	37	27	21	26	27	30	31	40	42	47	39						
9	50	48	42	41	61	65	66	64	58	49	44	49	M	42	41	39	37	46	44	50	55	55	54							
10	59	61	59	73	75	87	92	99	99	98	96	94	97	97	98	100	99	99	98	99	99	98	99							
11	98	99	98	97	96	95	91	92	90	88	95	93	92	95	95	95	95	95	90	95	95	95	97	97						
12	97	97	93	93	94	96	96	97	96	94	95	96	94	92	93	91	91	86	86	84	86	86	81	80						
13	75	85	82	65	67	56	56	54	56	52	47	44	46	40	39	38	39	37	36	54	60	63	70							
14	71	76	81	80	74	72	71	61	59	60	54	53	49	43	40	39	37	46	49	54	52	51	65							
15	78	85	88	85	75	73	70	61	60	60	56	49	40	38	35	34	33	32	27	42	36	37	40							
16	39	44	49	54	58	62	62	54	54	42	41	32	27	30	44	68	76	80	82	84	86	87	88							
17	89	92	96	98	96	97	92	82	72	71	68	65	62	61	52	46	46	45	53	53	58	69	71							
18	65	71	79	71	60	66	63	65	57	50	55	49	50	47	49	46	46	50	64	76	91	93	97							
19	97	98	99	99	99	99	97	97	98	92	76	80	73	69	74	72	68	70	76	80	81	90	93							
20	94	94	93	97	92	95	94	91	88	82	80	73	74	70	70	72	72	88	88	90	90	93	87							
21	89	91	86	87	86	86	89	87	83	72	71	72	70	63	47	45	45	49	50	59	69	66	83							
22	84	85	87	78	92	89	86	82	74	69	63	57	52	41	42	44	51	50	47	58	62									



Environnement
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SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Juin 1996

Montreal - Dorval (AUTO)

June 1996

LAT 45°28'N LONG 73°45'W ALTITUDE 0 METRES (NMM) ÉLÉVATION 0 METRES (ASL)				HEURE NORMALE UTILISÉE DE L'EST STANDARD TIME USED Eastern															
DATE	TEMPÉRATURE TEMPERATURE			DEGRÉS-JOURS DEGREE-DAYS		HUMIDITÉ RELATIF REL HUMIDITY		PRÉCIPITATIONS PRECIPITATION		VENTS WINDS			INSOLATION EFFECTIVE BRIGHT SUNSHINE HEURES HOURS						
	MAXIMALE MAXIMA °C	MINIMALE MINIMA °C	MOYENNE MEAN °C	DE CHAUFFE HEATING Base 18 °C	DE CROISSANCE GROWING Base 5 °C	DE RÉFRIGÉRATION COOLING Base 18 °C	MAXIMALE MAXIMA %	MINIMALE MINIMA %	ORAGE THUNDERSTORM FLASH	PLUIE (HAUTEUR) RAINFALL	NEIGE (HAUTEUR) SNOWFALL	PRECIP TOTAL TOTAL PRECIP	NEIGE AU SOL SNOW ON GROUND	VITESSE MOYENNE AVERAGE SPEED km/h	DIRECTION DOMINANTE PREVAILING DIRECTION	VITESSE MOYENNE MAX SUR 2 MIN MAX 2 MIN MEAN & DIRECTION km/h	MAX 2 MIN MEAN SPEED & DIRECTION km/h		
1	25.8	10.9	18.4		13.4	0.4	63	31					12.1	WSW	SSW*	20	13.0		
2	28.6	10.8	19.7		14.7	1.7	80	33					10.8	SSE	SE*	20	11.4		
3	25.9	14.1	20.0		15.0	2.0	88	38					17.1	SE	SE	28	7.9		
4	24.5	14.6	19.6		14.6	1.6	97	57					8.3	S	N	15	4.5		
5	22.2	13.6	17.9	0.1	12.9		96	55					21.3	SW	WSW	37	7.3		
6	21.4	12.6	17.0	1.0	12.0		80	59					13.7	W	WSW*	22	5.2		
7	18.3	11.7	15.0	3.0	10.0		100	80		11.0		11.0	10.0	NNE	NNE	20			
8	16.9	10.5	13.7	4.3	8.7		100	69			2.0		11.4	NNE	NNE	20			
9	21.9	14.1	18.0		13.0		97	76		17.0		17.0	9.9	NE	NNE	17	1.1		
10	25.5	16.9	21.2		16.2	3.2	100	82	1	2.0		2.0	6.9	SE	S	19	1.2		
11	28.5	16.2	22.4		17.4	4.4	100	72	1	6.0		6.0	6.5	S	NNW	15	7.2		
12	27.5	16.9	22.2		17.2	4.2	100	67			0.5		7.9	S	SSW*	15	8.7		
13	23.6	17.6	20.6		15.6	2.6	98	82	1	4.0		4.0	8.0	S	S	15	1.1		
14	27.0	15.6	21.3		16.3	3.3	96	47		TR		TR	14.5	W	W*	24	7.5		
15	25.4	13.2	19.3		14.3	1.3	91	43					13.9	SW*	W	31	9.7		
16	22.5	9.3	15.9	2.1	10.9		96	47					6.2	SSW	NE*	11	13.6		
17	27.6	13.2	20.4		15.4	2.4	91	46		TR		TR	11.9	NNE	WSW*	19	12.4		
18	25.2	15.2	20.2		15.2	2.2	76	39					12.3	NNE	NE	19	12.0		
19	27.4	15.7	21.6		16.6	3.6	83	50					11.5	SE	SSE	22	10.2		
20	23.3	15.3	19.3		14.3	1.3	92	72		TR		TR	9.3	ESE	ESE*	15	1.4		
21	25.3	14.5	19.9		14.9	1.9	97	52			0.6		17.5	W	W	35	7.2		
22	17.7	13.6	15.7	2.3	10.7		99	83			1.5		10.7	NE	NE	19	0.1		
23	20.8	14.2	17.5	0.5	12.5		100	57			1.5		15.8	W*	WNW*	30	8.7		
24	22.3	13.2	17.8	0.2	12.8		86	62		TR		TR	9.2	NE	NNE*	15	2.2		
25	23.4	9.8	16.6	1.4	11.6		97	48	1	3.5			14.4	NW	NW	28	7.2		
26	22.9	9.0	16.0	2.0	11.0		83	46					17.2	WNW*	W	28	14.6		
27	18.1	11.9	15.0	3.0	10.0		99	67			1.4		11.0	SW	WSW	19	4.0		
28	23.6	12.0	17.8	0.2	12.8		100	47					8.0	S	S*	13	11.5		
29	20.8	15.6	18.2		13.2	0.2	89	65			0.5		16.1	SSE	SE	30			
30	23.9	17.0	20.5		15.5	2.5	97	85	1	8.0			18.2	SSE	SE	26	1.4		
	MOY. MEAN	23.6	MOY. MEAN	13.6	MOY. MEAN	18.6	TOTAL 20.1	TOTAL 408.7	MOY. MEAN	38.8	TOTAL 6	TOTAL 58	TOTAL 65.5	TOTAL 65.5	MOY. MEAN	12.1	DOMINANTE PREVAILING	MAXIMALE MAXIMUM	TOTAL 192.3
NORMALE NORMAL		23.4		12.5		18.0	44.3	390.1		44.5				82.5		14.0	SW		245.1

SOMMAIRE DE DEGRÉS-JOURS/DEGREE-DAY SUMMARY

AU-DESSUS DE 18°C BELOW 18°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALÉE NORMAL	AU-DESSUS DE 5°C ABOVE 5°C	ANNÉE EN COURS THIS YEAR	PRÉCEDENTE PREVIOUS YEAR	NORMALÉE NORMAL	mm								cm								
								0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	50.0 OU PLUS	9.2 OU PLUS	10.0 OU PLUS	20.0 OU PLUS									
TOTAL DU MOIS TOTAL FOR MONTH	20.1	20.4	44.3	TOTAL DU MOIS TOTAL FOR MONTH	408.7	454.6	390.1																	
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	4629.9	4197.6	4575.0	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	681.5	751.9	703.5	17	13	9	2													1

Données non contrôlées/Data not validated

Les précipitations ont un seuil mesurable de 1,0 mm

Measurable threshold of precipitation is 1.0 mm

1. Journée climatologique/Climatological Day

2. Normale/Normal 1961-1990

3. TR=Trace

4 M=Manquant/Missing E=Estimée/Estimated

5. Pas de valeur/No entry/Pas d'événement/No occurrence

6. C=Calme/Calm

Canada

RELEVES COMPARATIFS À:
COMPARATIVE RECORDS AT:

Montreal - Dorval (AUTO)

Juin 1996

June 1996

	CE MOIS-CI THIS MONTH	ANNÉE PRÉCÉDENTE PREVIOUS YEAR		NORMALE NORMAL	RECORD POUR LE MOIS RECORD FOR THE MONTH						
					MAXIMUM ABSOLU HIGHEST EVER			MINIMUM ABSOLU LOWEST EVER			
		RELEVE VALUE	JOUR DAY		ANNEE YEAR	RELEVE VALUE	JOUR DAY	ANNEE YEAR	RELEVE VALUE	JOUR DAY	NO D'ANNÉES NO OF YEARS
TEMPÉRATURE MAXIMALE HIGHEST TEMPERATURE (MAXIMUM)	°CELSIUS	28.6	2	32.2	19	35.0	30	1964	25.0	1	52
TEMPÉRATURE MINIMALE LOWEST TEMPERATURE (MINIMUM)	°CELSIUS	9.0	26	7.4	10	35.0	30	1964	0.7	3	1986
TEMPÉRATURE MENSUELLE MOYENNE MEAN MONTHLY TEMPERATURE	°CELSIUS	18.6		20.2		18.0	20.3	1949	15.6		1958
HAUTEUR TOTALE MENSUELLE DE PLUIE TOTAL MONTHLY RAINFALL	Millimètres (mm) Millimètres (mm)	65.5		56.6		82.5	215.7	1943	18.6		1965
HAUTEUR TOTALE MENSUELLE DE NEIGE TOTAL MONTHLY SNOWFALL	centimètres (cm) centimètres (cm)					.0			0.0		52
PRÉCIPITATION TOTALE MENSUELLE TOTAL MONTHLY PRECIPITATION	Millimètres (mm) Millimètres (mm)	65.5		56.6		82.5	215.7	1943	18.6		1965
Nombre de Jours avec PRÉCIPITATION MESURABLE No of Days with MEASURABLE PRECIPITATION		17				13	18	1981	4		1995
Hauteur de Pluie Maximale en une Journée GREATEST RAINFALL IN ONE DAY	Millimètres (mm) Millimètres (mm)	17.0	9	49.2	3	61.6	8	1987			52
Hauteur de Neige Maximale en une Journée GREATEST SNOWFALL IN ONE DAY	centimètres (cm) centimètres (cm)										52
Précipitation Maximale en une Journée GREATEST PRECIPITATION IN ONE DAY	Millimètres (mm) Millimètres (mm)	17.0	9	49.2	3	61.6	8	1987			52
Hauteur de Pluie Enregistrée en Maximum Rainfall Recorded in:											
5 MINUTES	Millimètres (mm) Millimètres (mm)								15.2	24	1962
10 MINUTES	Millimètres (mm) Millimètres (mm)								22.9	6	1963
15 MINUTES	Millimètres (mm) Millimètres (mm)								30.5	6	1963
30 MINUTES	Millimètres (mm) Millimètres (mm)								35.3	6	1963
60 MINUTES	Millimètres (mm) Millimètres (mm)								44.0	8	1987
24 HEURES CONSECUTIVES CONSECUTIVE HOURS	Millimètres (mm) Millimètres (mm)										
VITESSE MOYENNE DU VENT (KM/H) MEAN WIND SPEED (KM/H)		12.1		12.8		14.0	18.8	1958	9.2		1968
VITESSE MAXIMALE (MOYENNE SUR 2 MIN.) (KM/H) MAXIMUM SPEED (2 MIN. MEAN) (KM/H)	WSW 37	5	SSW 37	18		NE 66	22	1972			41
Pointe du Vent Maximale (KM/H) MAXIMUM GUST SPEED (KM/H)	SW 63	11	NNE 61	25		SSW 111	29	1957			38
Total des Heures d'Insolation TOTAL HOURS OF SUNSHINE -		192.3		313.5	245.1	313.5		1995	159.6		1990
Pression Moyenne à la Station (hPa) MEAN STATION PRESSURE (hPa)		101.00		100.78		100.88	101.25	1967	100.58		1981
Pression Maximal à la Station (hPa) GREATEST STATION PRESSURE (hPa)		102.05	2	102.24	16		102.82	5	1976		41
Pression Minimale à la Station (hPa) LEAST STATION PRESSURE (hPa)		99.79	22	98.80	11				97.95	29	1957

DONNEES CLIMATOLOGIQUES CE MOIS-CI POUR LES 10 DERNIERES ANNÉES
CLIMATOLOGICAL DATA THIS MONTH FOR THE PAST 10 YEARS

ANNÉE YEAR	TEMP. MAXIMALE MAXIMUM TEMP.	TEMP. MINIMALE MINIMUM TEMP.	TEMP. MOYENNE MEAN TEMP.	HAUTEUR DE PLUIE RAINFALL	HAUTEUR DE NEIGE SNOWFALL	PRECIP. TOTALE TOTAL PRECIP.	VITESSE MOYENNE DES VENTS MEAN WIND SPEED	HEURES D'INSOLATION SUNSHINE HOURS	DÉGRÉ-JOURS DE CHAUFFE HEATING DEGREE-DAYS	DÉGRÉ-JOURS DE CROISSANCE GROWING DEGREE-DAYS	DÉGRÉ-JOURS DE RÉFRIGÉRATION COOLING DEGREE-DAYS	A.S.H. S.A.S.	
1987	31.6	6.9	18.6	129.0		129.0	11.4	NNW 37	239.4	29.8	409.1	48.9	201.2
1988	33.4	4.6	17.1	72.0		72.0	12.5	NNE 43	257.3	77.3	363.6	50.9	166.6
1989	32.7	7.9	18.9	84.6		84.6	11.0	WSW 37	242.9	29.4	416.6	56.0	-16.0
1990	28.9	4.3	18.1	68.8		68.8	12.9	WSW 52	159.6	41.1	392.2	43.3	198.4
1991	32.6	7.4	19.0	34.8		34.8	13.0	W 41	291.5	26.2	420.9	57.1	197.0
1992	28.7	6.5	17.7	76.4		76.4	12.7	SW 33	239.5	40.0	380.7	30.7	206.5
1993	30.0	5.1	17.6	93.4		93.4	12.7	W 37	230.7	49.1	377.1	36.2	242.0
1994	33.9	5.3	19.0	143.8		143.8	11.2	WSW 37	247.4	34.4	421.4	65.8	274.4
1995	32.2	7.4	20.2	56.6		56.6	12.8	SW 37	313.5	20.4	454.6	85.0	186.7
1996	28.6	9.0	18.6	65.5		65.5	12.1	WSW 37	192.3	20.1	408.7	38.8	213.6

Température horaire Hourly temperature												Montreal - Dorval (AUTO)												Juin 1996 June 1996					
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	132	125	112	117	111	118	130	149	166	174	195	211	225	247	248	254	247	243	239	208	185	183	161	15					
2	151	148	125	128	110	135	152	160	189	221	238	243	265	274	275	280	275	268	250	240	226	200	196	18					
3	163	167	150	153	146	144	162	179	199	219	229	224	223	236	249	254	223	219	211	201	180	170	160	15					
4	160	158	156	155	154	155	M	157	162	171	184	192	213	219	229	245	226	216	178	179	181	176	170	16					
5	160	147	147	150	146	151	153	163	165	179	196	206	213	210	213	208	198	180	182	181	174	169	164	16					
6	149	139	132	134	140	138	141	144	151	159	170	177	190	198	196	204	203	213	198	188	185	178	183	18					
7	177	179	172	166	166	161	156	147	144	142	143	147	149	152	153	157	157	157	156	151	147	143	14						
8	133	133	121	128	132	137	137	140	142	146	154	159	160	147	156	163	166	165	164	155	153	159	165	16					
9	162	163	157	151	143	142	143	154	167	181	191	200	202	206	208	219	219	217	216	215	210	209	204	20					
10	199	196	191	189	183	186	190	194	202	212	217	222	240	254	242	226	223	222	230	227	213	207	203	19					
11	190	174	173	195	195	187	188	204	215	232	253	263	271	282	271	261	268	260	199	200	198	183	183	18					
12	184	184	186	182	176	183	189	204	217	229	243	251	260	267	255	254	259	257	254	249	228	217	221	21					
13	209	202	195	193	191	194	197	197	196	201	201	203	203	213	223	228	208	195	202	193	190	190	188	18					
14	180	179	175	171	171	174	176	183	195	198	204	222	236	239	259	266	265	256	253	230	192	184	176	17					
15	174	169	168	162	167	164	172	180	184	196	219	230	241	243	253	241	241	232	217	202	170	183	170	16					
16	152	152	106	120	104	131	136	153	160	171	189	190	194	201	214	212	216	223	216	201	181	180	168	16					
17	148	143	156	147	160	151	175	195	209	217	231	247	258	267	268	274	274	271	256	246	237	215	212	20					
18	189	178	168	155	152	158	175	188	199	211	219	226	233	240	244	244	245	244	236	228	218	196	199	20					
19	181	171	171	171	165	161	177	195	212	224	241	247	258	260	263	257	256	252	233	216	202	185	178	17					
20	165	163	161	160	156	170	183	186	196	200	205	205	223	226	224	228	225	225	224	223	220	212	215	21					
21	199	194	195	193	191	197	203	213	221	219	236	233	249	249	230	237	233	236	233	220	199	184	167	15					
22	151	145	140	139	139	138	142	154	152	154	153	164	173	175	162	162	174	177	169	170	168	162	157	15					
23	149	148	149	154	160	162	170	175	173	181	181	182	184	190	194	196	203	203	188	175	169	157	145	15					
24	148	146	145	138	134	132	135	138	144	153	158	168	172	184	195	204	216	218	212	199	192	179	174	18					
25	157	153	146	136	135	137	144	146	149	167	166	191	202	226	222	199	190	203	197	185	167	160	144	11					
26	100	101	97	107	100	100	114	125	137	152	167	175	188	195	210	218	227	221	218	206	179	163	150	11					
27	132	128	134	143	144	139	145	163	171	173	177	171	168	165	153	157	165	178	175	163	145	150	144	14					
28	128	136	135	134	132	133	141	158	175	183	194	203	214	216	225	231	231	227	212	198	190	186	181	18					
29	165	171	181	169	160	163	160	164	168	169	168	177	174	184	186	195	200	201	203	203	202	198	193	18					
30	183	182	180	175	174	172	180	182	185	181	185	184	195	199	203	218	230	236	223	211	205	200	193	18					

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

		Montreal - Dorval (AUTO)																						Juin 1996		June 1996					
		Heure normale locale: Est Local standard time : Eastern																						Rafale max							
DATE		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	heure time	jour day				
1	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	SW	SSW	S	SSW	WSW	WSW	WSW	S	S														
15	17	13	17	13	17	19	17	13	17	20	20	20	17	13	13	7	7	11	7	7	6	6	6	7		SE	16	2			
2	S	C	C	SE	SSE	ESE	SE	SE	S	S	SW	WSW	S	ESE	SE	SSE	SSE	SE	SE	SSE	SSE	SSE	SSE	SSE		SE	31				
4	0	0	7	4	7	6	9	4	6	13	6	7	11	20	19	20	19	15	13	13	11	11	9	9		SE	35	17			
3	SSE	SE	SSE	SE	SE	SSE	SSE	SE	SE	SSE	SE	SSE	SE	SSE	SSE	SSE	SSE		SE	35	17										
13	15	13	15	13	13	17	20	19	13	13	22	19	15	22	26	22	20	24	28	20	19	13	13	7							
4	E	E	E	E	E	ENE	M	N	NE	NE	ESE	E	C	ESE	ESE	SSE	S	SSW	S	9	11	11	11	7	11		SSE	SSE			
9	9	11	9	7	4	M	15	9	11	7	4	4	0	6	7	11	7	9	11	11	11	11	7	11							
5	SSE	SSE	SSE	SE	SE	SE	SW	SW	SSW	SW	SW	SW	WSW	SW	WSW	SW	WSW	SW	SW	SW	SW	SW	WSW	WSW		SW	54	15			
9	9	7	6	7	7	6	9	13	22	30	31	33	37	35	33	22	24	30	30	26	26	26	26	26							
6	WSW	W	WSW	WSW	WSW	W	W	W	W	WNW	S	S	SSW	WSW	W	W	W	WSW	C	SSE	SE	SE	SE	SE	W						
24	22	22	19	19	22	22	20	22	17	17	17	13	15	17	15	13	13	13	13	4	0	6	4	4	4	33	2	6			
7	SE	ENE	NNE	C	S	ESE	NE	NE	NE	NE	NNE	N	WNW	C	NNW	NNW	NNW	NNW													
6	9	6	0	7	11	7	11	19	13	19	19	19	20	19	17	19	13	13	9	6	0	9	7	0							
8	C	NNE	C	N	NNE	E	NNE	NNE																							
0	4	0	6	20	17	17	13	19	11	13	11	11	17	15	11	11	11	11	9	11	11	6	9	9	7						
9	NNE	NNE	N	NNE	N	NNE	E	E	E	E	E	E	E	E	E	E	E	E	E												
9	11	13	13	11	15	15	15	17	13	11	13	15	7	6	6	7	9	9	7	6	7	4	7	4							
10	SW	E	SE	ESE	SE	E	E	E	E	ESE	ESE	ESE	SSE	SSE	S	SW	SSE	C	SE	C											
11	7	13	9	9	11	4	4	4	6	7	6	6	7	9	9	9	9	9	7	0	7	7	7	0							
11	C	C	NW	N	C	S	C	C	SSW	S	W	S	SW	SSW	SSE	SE	S	S	NNW	SSW	S	SSW	C	SSW	63	18	11				
0	0	4	6	0	7	0	0	0	6	9	4	9	13	9	7	6	11	9	9	15	4	9	6	0							
12	E	SSE	C	SE	C	ESE	C	C	SSE	S	SW	S	S	S	S	S	S	S	SSE	S	S	S	S	S	S						
6	6	0	7	0	4	0	0	0	6	9	9	9	9	9	9	9	11	11	9	11	7	11	4	15							
13	SSW	SSW	SW	SE	SE	S	SW	SSW	SW	WSW	S	SSW	S	SSE	SW	SSW	S	S	SSE	S	S	S	S	S	S						
15	9	4	6	6	6	6	6	6	7	6	7	7	7	4	9	7	7	7	6	7	9	13	13	11	9						
14	S	SW	SW	SW	SW	SW	SW	SW	WSW	W	WSW	W	SSW	W	WSW	W	WSW														
11	11	11	11	9	7	13	17	19	13	19	15	19	24	22	24	22	24	20	13	11	13	11	13	9	35	16	14				
15	SSE	SSW	SW	SW	SSW	SW	SW	SW	WSW	WSW																					
6	11	13	11	13	11	13	9	9	9	7	4	7	6	11	31	30	26	22	24	17	11	19	11	13	41	14	15				
16	NNE	NE	C	N	NNE	NE	NE	NE	NE	SSW	WSW	C	SW	W	C	S	SW	SSW	SSE	SSW	SSE	SSW	SSE	SSW	SSE						
9	7	0	4	6	11	11	9	6	4	4	0	7	6	0	9	9	7	7	7	6	7	7	6	7							
17	W	WSW	SW	SSW	SW	WSW	WSW	SW	SW	SSW	WSW	WSW	W	WSW	W	WSW	W	WSW	NNE	NNE	NNE	NNE	NNE	NNE	NNE		W	35	15		
7	6	4	6	9	9	9	9	7	7	11	13	19	19	17	19	19	19	17	11	9	7	15	11	9	7						
18	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	E	NNE	NNE																
13	13	15	9	13	13	15	17	17	19	9	17	13	17	11	13	11	11	11	11	9	7	7	7	7	7						
19	N	NNE	N	N	NNE	NNE	NNE	NNE	NNE	E	ESE	SSE	SSE	SSE																	
9	9	9	9	9	11	9	7	4	4	7	9	9	9	7	22	20	15	17	20	15	15	15	13	15	15						
20	SSE	SSE	SE	SE	SE	ESE	ESE	E	E	ESE	ESE	ESE	ESE	ESE																	
11	9	7	9	9	7	9	6	9	13	15	11	13	15	11	11	7	9	6	6	11	6	7	6	7	7						
21	ESE	SE	SE	S	SSW	SW	WSW	W	W	WNW	N	NE	NNE	NNE	NNE	NNE	NNE	NNE		W	48	21									
7	6	6	7	7	13	19	20	26	26	22	26	28	24	35	22	24	15	9	11	19	13	17	13	13	13						
22	NE	NE	NE	NE	NE	NE	NE	NE	NE	E	SE	E	N	NNE	NE	NE	NE	NE	E	ESE	E	E	E	E	E	E					
6	11	13	9	13	9	13	9	6	9	6	9	6	9	7	9	17	19	11	13	11	7	13	11	11	11						
23	NW	WNW	W	W	W	W	W	W	WNW	W	WNW	W	WNW	W																	
11	9	9	7	7	11	19	19	22	22	20	30	30	24	17	19	20	11	13	15	13	9	9	7	13	44	11	23				
24	NE	NE	NE	NE	NE	NE	NE	NE	NE	E	NE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E					
9	II	9	11	9	11	7	11	6	11	9	11	9	9	9	9	9	9	9	7	7	15	15	15	15	15						
25	N	N	NE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N			
9	6	9	4	9	13	6	6	6	6	11	13	11	20	20	17	22	11	26	20	28	22	19	19	19	19	17	46	19	25		
26	NW	W	WNW	WNW	WNW	WNW	WNW																								
11	6	15	17	19	19	19	24	17	24	15	13	19	17	19	26	20	28	19	15	13	13	11	11	11	11	37	12	26			
27	W	WNW	WNW	SW	SW	SW	SW	SW	SW	WSW	SW	W	NW	WNW	WSW	SW	WSW	SW	WSW	SW	SW	SW	SW	SW	SW	SW	SW	SW			
9	11	9	7	7	7	7	11	7	13	9	13	7	7	13	17	13	19	15	13	9	15	13	13	11	11	11	11				
28	WSW	E	S	SW	WNW	NW	N	N	N	SSW	SSW	SSW	SSW	SSW																	

Points de rosée horaires Hourly dew points												Montreal - Dorval (AUTO)												Juin 1996 June 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	19	19	27	35	44	51	55	60	75	76	90	95	92	96	77	71	64	58	74	60	46	85	80								
2	80	79	78	82	77	71	92	94	103	96	110	127	123	115	96	116	116	113	107	100	93	100	88								
3	99	102	104	103	92	86	91	97	108	116	130	113	119	131	122	117	91	71	83	92	114	127	134								
4	140	138	138	138	140	142	M	146	144	153	160	157	160	157	164	155	145	161	167	171	176	169	154								
5	152	142	141	142	138	140	144	145	148	138	134	126	117	120	120	109	122	113	108	111	108	111	108								
6	107	100	98	98	95	97	98	103	110	115	127	128	133	134	125	132	129	129	128	132	120	134	124								
7	119	122	138	146	145	146	148	137	139	136	138	144	146	146	150	149	147	147	149	147	146	141	140								
8	133	133	121	123	111	90	88	90	90	97	101	102	112	123	134	140	139	141	139	141	143	144	141								
9	140	137	134	123	118	113	111	120	133	144	149	158	164	166	166	175	174	178	177	182	183	186	189								
10	191	191	189	183	179	180	180	181	186	192	203	208	218	220	211	208	212	215	220	213	204	206	202								
11	190	173	170	195	195	187	188	203	209	214	223	216	225	227	220	230	222	217	191	191	180	174	176								
12	181	182	182	176	182	179	194	191	194	194	203	200	192	191	212	210	203	206	200	195	186	189									
13	194	191	190	187	187	190	189	192	197	197	197	186	202	205	196	176	178	177	180	176	181	183	177								
14	174	170	164	163	164	167	169	174	179	181	186	187	190	196	194	184	176	135	138	136	141	128	121								
15	138	138	133	134	153	149	151	153	148	148	160	150	164	163	135	106	107	104	101	102	105	87	83								
16	74	74	81	82	77	85	90	98	98	96	110	105	99	96	97	100	115	114	119	111	103	109	125								
17	130	136	141	130	138	130	137	144	153	158	166	169	155	170	172	167	151	145	141	129	123	127	131								
18	116	112	109	109	111	107	107	109	109	111	104	106	108	100	110	98	98	100	99	100	112	101	96								
19	103	116	121	118	113	112	127	142	148	165	168	178	175	177	164	163	154	141	138	133	132	130	132								
20	134	135	137	136	137	144	150	151	158	160	163	170	176	176	170	175	176	180	180	183	186	181	182								
21	177	180	181	184	186	191	196	198	180	153	167	145	146	145	148	151	143	153	154	159	159	155	146								
22	125	121	122	121	121	119	121	126	126	129	143	150	154	152	152	157	164	164	164	167	161	155	151								
23	148	146	149	152	155	153	152	147	138	136	128	124	124	128	119	114	121	114	108	104	100	102	94								
24	79	80	85	84	86	77	84	88	90	101	101	112	117	125	131	141	148	141	143	141	144	135	128								
25	132	130	126	129	130	132	132	130	137	135	138	136	115	110	109	98	118	114	120	86	81	71	72								
26	71	71	69	68	63	66	61	61	68	68	80	80	84	93	97	101	106	99	96	90	95	94	91								
27	90	87	90	110	113	109	110	117	118	119	115	128	131	126	132	132	126	132	130	128	135	134	137								
28	127	132	135	134	132	132	134	141	139	145	149	136	125	122	119	112	113	108	106	115	114	117	116								
29	120	125	115	117	126	123	132	138	144	149	148	141	140	137	139	151	160	164	164	167	153	160									
30	156	154	156	161	162	165	162	163	166	170	176	179	187	190	194	199	208	210	201	192	191	187	182								

Unités / Units: 0.1 °C

M = Manquant / Missing

Humidités relatives horaires Hourly relative humidities												Montreal - Dorval (AUTO)												Juin 1996 June 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	46	48	56	57	63	63	60	55	55	53	51	47	42	37	38	32	32	32	31	42	44	40	61	61							
2	63	63	73	74	80	65	67	65	57	45	45	48	41	37	33	36	37	38	41	41	43	53	50	57							
3	66	65	74	72	70	68	63	59	56	52	54	49	52	52	45	42	43	38	44	49	65	76	85	87							
4	88	88	89	90	91	92	91	93	89	89	86	80	72	68	67	57	60	71	93	95	97	96	95								
5	95	97	96	95	95	93	94	89	88	82	69	63	58	55	55	57	56	69	64	62	66	67	71								
6	76	77	80	79	74	76	75	76	75	73	70	67	64	63	62	62	59	64	70	66	75	68	68								
7	69	69	80	88	87	91	95	94	97	96	97	94	97	94	96	95	94	94	96	96	97	99	99	100							
8	100	100	100	100	87	73	72	71	72	71	69	73	73	78	77	76	86	84	86	85	91	94	84								
9	87	85	86	83	85	83	81	80	79	77	77	79	77	78	77	76	76	79	78	82	85	87	91								
10	95	97	99	96	98	96	94	92	88	92	91	88	92	92	88	83	90	94	96	92	95	99	99								
11	100	99	98	100	100	100	100	99	99	96	90	83	75	76	72	74	83	76	77	95	89	94	96								
12	98	99	98	100	100	100	99	99	94	85	81	74	75	71	67	68	68	75	73	77	84	87	81								
13	91	93	97	96	98	98	95	95	98	98	96	90	90	89	81	75	77	67	61	58	47	55	57								
14	96	94	93	95	96	96	94	90	90	89	89	81	75	77	67	61	58	47	49	55	57	72	70								
15	79	82	80	83	91	91	87	84	80	74	69	61	62	61	48	43	44	48	53	66	53	57	56								
16	60	60	85	78	83	74	74	70	67	61	60	58	54	51	47	49	53	50	54	56	60	63	79								
17	89	96	91	90	87	87	78	72	70	69	67	62	53	55	52	47	46	49	48	49	57	60	53								
18	63	65	68	74	76	72	64	60	56	52	50	46	45	43	40	43	39	40	42	44	47	58	53								
19	60	70	72	71	71	73	71	67	69	64	66	60	60	55	56	53	50	55	59	64	70	73	78								
20	82	83	86	86	88	85	81	80	79	78	77	80	75	73	72	74	76	76	78	81	82	82	84								
21	87	92	92	95	97	96	96	91	78	66	65	58	53	52	60	59	57	60	61	68	78										



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SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Juillet 1996

Montreal - Dorval (AUTO)

July 1996

LAT 45° 28N LONG 73° 45W				ALTITUDE 36 METRES (NMM) ÉLEVATION 36 METRES (ASL)				HEURE NORMALE UTILISÉE STANDARD TIME USED				DE L'EST Eastern					
DATE	TEMPÉRATURE TEMPERATURE			DEGRÉS-JOURS DEGREE-DAYS			HUMIDITÉ REL. REL. HUMIDITY		ORAGE THUNDERSTORM	PRÉCIPITATIONS PRECIPITATION			VENTS WINDS			ISOLATION EFFETIVE BRIGHT SUNSHINE HEURES HOURS	
	MAXIMALE MAXIMUM	MINIMALE MINIMUM	MOYENNE MEAN	DE CHAUFFE HEATING	DE CROISANCE GROWING	DE RÉFRIGÉRATION COOLING	MAXIMALE MAXIMUM	MINIMALE MINIMUM		RUISEAU (HAUTEUR) RAINFALL	NEIGE (HAUTEUR) SNOWFALL	PRECIP TOTAL TOTAL PRECIP	NEIGE AU SOL SNOW ON GROUND	VITESSE MOYENNE AVG SPEED	DIRECTION DOMINANTE PREVAILING DIRECTION	VITESSE MOYENNE MAX SUR 2 MIN A. DIRECTION MAX 2 MIN MEAN SPEED & DIRECTION	
1	28.1	18.7	23.4		18.4	5.4	81	44		TR		TR		19.6	SW	W 30	13.7
2	27.9	17.3	22.6		17.6	4.6	89	50						11.2	SSW	SSW 19	11.5
3	24.3	17.8	21.1		16.1	3.1	88	67						16.5	NE*	NNE* 28	2.5
4	18.1	15.6	16.9	1.1	11.9		98	91		20.5				19.7	N	NNE 30	0.0
5	26.1	14.3	20.2		15.2	2.2	91	45		1.0				19.7	W	W* 30	11.8
6	23.0	13.6	18.3		13.3	0.3	87	49		0.5		0.5		20.0	WSW	W* 33	11.0
7	24.1	11.8	18.0		13.0		93	55		0.5		0.5		9.6	SW	SSE* 15	5.7
8	25.4	16.3	20.9		15.9	2.9	100	55		TR		TR		14.0	W*	SW 30	12.2
9	24.9	13.8	19.4		14.4	1.4	90	52		TR		TR		17.5	SW	SW 31	13.0
10	21.1	12.9	17.0	1.0	12.0		94	60						19.9	W*	W 35	9.2
11	25.3	13.7	19.5		14.5	1.5	90	54		TR		TR		20.6	SW	SW 30	12.2
12	27.5	15.3	21.4		16.4	3.4	77	44						8.9	SSE	SE 20	7.3
13	24.0	16.7	20.4		15.4	2.4	99	74						11.5	SE	SE 19	0.0
14	27.6	17.2	22.4		17.4	4.4	99	62	1	5.0		5.0		10.1	SE	SE 19	6.9
15	24.7	17.6	21.2		16.2	3.2	100	81		24.0		24.0		15.8	ESE	SW 30	0.1
16	25.8	15.9	20.9		15.9	2.9	96	69	1	24.0		24.0		20.8	SW	SW* 26	7.4
17	27.6	17.5	22.6		17.6	4.6	89	53						19.1	WSW	W* 26	12.7
18	28.4	16.8	22.6		17.6	4.6	96	60						10.3	SW	SSW* 15	10.6
19	23.0	14.3	18.7		13.7	0.7	98	67						17.0	SE	NW 39	1.7
20	20.6	13.9	17.3	0.7	12.3		76	48						27.8	WNW	WNW 41	0.3
21	25.5	13.4	19.5		14.5	1.5	83	38						17.5	WNW	WNW* 26	14.4
22	26.6	11.9	19.3		14.3	1.3	97	42						10.1	WSW*	S* 19	13.6
23	25.7	16.1	20.9		15.9	2.9	95	60						9.4	SSE	SSE 24	4.5
24	27.6	16.1	21.9		16.9	3.9	98	51		TR				10.9	SSE	SE 19	13.6
25	26.5	18.4	22.5		17.5	4.5	95	69	1	7.5				10.4	SE*	WNW 28	3.9
26	25.8	17.4	21.6		16.6	3.6	94	58						13.5	W	W* 24	11.3
27	23.6	13.9	18.8		13.8	0.8	93	59						14.5	W*	W* 26	9.9
28	24.4	12.3	18.4		13.4	0.4	96	41						8.3	WSW	WSW 17	12.8
29	26.2	12.1	19.2		14.2	1.2	98	48						10.3	ESE	ESE 20	12.7
30	22.4	18.5	20.5		15.5	2.5	92	67						17.2	SE	SE* 22	0.0
31	21.0	17.0	19.0		14.0	1.0	97	79	1	8.0		8.0		16.2	SE	SE 26	0.8
	MOY. 24.9	MOY. 15.4	MOY. 20.2	TOTAL MEAN	TOTAL MEAN	TOTAL MEAN	71.2	MOY. 92	MOY. 57	TOTAL 4	TOTAL 106.0	TOTAL 106.0	MOT. DOMINANTE PREVAILING	DOMINANTE W 41	MAXIMALE WNW MAXIMUM	TOTAL 247.3	
NORMALE NORMAL	26.2	15.4	20.8	9.1	491.2	97.3				7	85.6	.0	85.6	12.0	SW		275.9
SOMMAIRE DE DEGRÉS-JOURS/DEGREE-DAY SUMMARY												JOURS AVEC PRÉCIPITATIONS TOTALES/ DAYS WITH TOTAL PRECIPITATION:				JOURS AVEC CHUTES DE NEIGE/ DAYS WITH SNOWFALL	
AU-DESSOUS DE 18°C BELOW 18°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALE NORMAL	AU-DESSUS DE 18°C ABOVE 18°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALE NORMAL						mm	cm			
TOTAL DU MOIS TOTAL FOR MONTH	2.3	0.0	9.1	TOTAL DU MOIS TOTAL FOR MONTH	471.4	531.6	491.2						0.1 OU PLUS	1.0 OU PLUS	1.0 OU PLUS	1.0 OU PLUS	
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	2.3	0.0	9.1	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	1152.9	1283.5	1194.7	11	9	8	4		0.2 OU PLUS	1.0 OU PLUS	1.0 OU PLUS	1.0 OU PLUS	

Données non contrôlées/Data not validated

Les précipitations ont un seuil mesurable de 1,0 mm
Measurable threshold of precipitation is 1.0 mm

1. Journée climatologique/Climatological Day

2. Normale/Normal 1961-1990

3. TR=Trace

4. M=Manquant/Missing E=Estime/Estimated

5. Pas de valeur/No entry/Pas d'événement/No occurrence

6. C=Calme/Calm



Canada

Montreal - Dorval (AUTO) Type B												Juillet 1996				
												July 1996				
				CE MOIS-CI THIS MONTH		ANNÉE PRÉCÉDENTE PREVIOUS YEAR		NORMAL NORMAL	RECORD POUR LE MOIS RECORD FOR THE MONTH							
									MAXIMUM ABSOLU HIGHEST EVER		MINIMUM ABSOLU LOWEST EVER		No D'ANNÉES NO OF YEARS			
				RELEVE VALUE	JOUR DAY	RELEVE VALUE	JOUR DAY		RELEVE VALUE	JOUR DAY	ANNEE YEAR	RELEVE VALUE	JOUR DAY	ANNEE YEAR		
HUMÉRATURE MAXIMALE HIGHEST TEMPERATURE (MAXIMUM)	°CELSIUS	28.4	18	32.4	14			35.6	22	1955						52
HUMÉRATURE MINIMALE LOWEST TEMPERATURE (MINIMUM)	°CELSIUS	11.8	7	11.5	4							6.1	3	1982		52
HUMÉRATURE MENSUELLE MOYENNE AVERAGE MONTHLY TEMPERATURE	°CELSIUS	20.2		22.2		20.8	23.8			1955	18.7			1992		52
AUTEUR TOTALE MENSUELLE DE PLUIE TOTAL MONTHLY RAINFALL	Millimètres (mm) Millimetres (mm)	106.0		122.1		85.6	182.6			1980	30.0			1989		52
AUTEUR TOTALE MENSUELLE DE NEIGE TOTAL MONTHLY SNOWFALL	Centimètres (cm) Centimetres (cm)					.0										52
ÉCIPITATION TOTALE MENSUELLE TOTAL MONTHLY PRECIPITATION	Millimètres (mm) Millimetres (mm)	106.0		122.1		85.6	182.6			1980	30.0			1989		52
OMBRE DE JOURS AVEC PRÉCIPITATION MESURABLE NO OF DAYS WITH MEASURABLE PRECIPITATION		11		15		12	20			1980	6			1955		52
AUTEUR DE PLUIE MAXIMALE EN UNE JOURNÉE HIGHEST RAINFALL IN ONE DAY	Millimètres (mm) Millimetres (mm)	24.0	15	36.2	23			57.4	14	1987						52
AUTEUR DE NEIGE MAXIMALE EN UNE JOURNÉE HIGHEST SNOWFALL IN ONE DAY	Centimètres (cm) Centimetres (cm)								31	1993						52
ÉCIPITATION MAXIMALE EN UNE JOURNÉE HIGHEST PRECIPITATION IN ONE DAY	Millimètres (mm) Millimetres (mm)	24.0	15	36.2	23			57.4	14	1987						52
AUTEUR DE PLUIE ENREGISTRÉE EN L'UNIQUE RAINFALL RECORDED IN:																
MINUTES	Millimètres (mm) Millimetres (mm)					5.8	23			1987						50
MINUTES	Millimètres (mm) Millimetres (mm)					10.3	23			1987						50
MINUTES	Millimètres (mm) Millimetres (mm)					13.4	23			1987						50
MINUTES	Millimètres (mm) Millimetres (mm)					17.3	23			1987						50
MINUTES	Millimètres (mm) Millimetres (mm)					20.2	23			1975						50
HEURES CONSECUTIVES CONSECUTIVE HOURS	Millimètres (mm) Millimetres (mm)					36.2	23									
TESSE MOYENNE DU VENTS (KM/H) MEAN WIND SPEED (KM/H)		15.1		12.1		12.0	17.8			1975	6.3			1988		41
TESSE MAXIMALE (MOYENNE SUR 2 MIN.) (KM/H) MEAN SPEED (2 MIN. MEAN) (KM/H)	WNW 41	20	WSW 54	20		WSW 58	11	1956								41
VENT DU VENT MAXIMALE (KM/H) MAXIMUM GUST SPEED (KM/H)	WSW 63	16	WSW 72	6		WNW 126	2	1975								38
OTAL DES HEURES INSOLATION TOTAL HOURS OF SUNSHINE		247.3		260.5		275.9	316.7			1982	230.8			1992		24
SSION MOYENNE À LA STATION (kPa) MEAN STATION PRESSURE (kPa)		100.64				100.93	101.21			1968	100.69			1980		41
SSION MAXIMAL À LA STATION (kPa) REATEST STATION PRESSURE (kPa)		102.09	29				102.72	2	1981							41
SSION MINIMALE À LA STATION (kPa) LAST STATION PRESSURE (kPa)		99.04	19								98.97	12	1976			41

DONNÉES CLIMATOLOGIQUES CE MOIS-CI POUR LES 10 DERNIERES ANNÉES
CLIMATOLOGICAL DATA THIS MONTH FOR THE PAST 10 YEARS

ANNÉE YEAR	TEMP. MAXIMALE MAXIMUM TEMP.	TEMP. MINIMALE MINIMUM TEMP.	TEMP. MOYENNE MEAN TEMP.	HAUTEUR DE PLUIE RAINFALL	HAUTEUR DE NEIGE SNOWFALL	PRECIP. TOTALE PRECIP.	MOYENNE DES VENTS MEAN WIND SPEED	VITESSE MAXIMALE DES VENTS MEAN WIND SPEED	HEURES D'INSOLATION SUNSHINE HOURS	DEGRÉS-JOURS DE CHAUFFE HEATING DEGREE-DAYS	DEGRÉS-JOURS DE CROISSANCE GROWING DEGREE-DAYS	DEGRÉS-JOURS DE RÉFRIGÉRATION COOLING DEGREE-DAYS	A.S.N S.A.S.
1987	33.6	8.4	21.5	131.0		131.0	10.5	WNW 37	296.0	8.7	512.5	118.2	
1988	33.8	9.5	22.5	31.2		31.2	6.3	SW 31	237.9	6.4	541.4	144.8	
1989	33.4	10.2	21.7	30.0		30.0	10.1	WNW 33	316.6	0.8	517.0	114.8	
1990	31.0	8.4	21.1	132.4		132.4	11.0	SW 37	277.7	8.7	499.7	105.4	
1991	33.3	8.9	21.2	85.4		85.4	11.1	NW 30	305.1	4.0	502.3	103.3	
1992	28.3	7.1	18.7	137.2		137.2	12.0	WSW 37	230.8	17.5	423.6	38.1	
1993	33.5	11.7	21.5	90.2		90.2	11.1	W 37	257.7	2.1	511.9	111.0	
1994	32.7	11.5	21.8	50.6		50.6	11.4	SW 32	261.5	0.4	520.9	118.3	
1995	32.4	11.5	22.2	122.1		122.1	12.1	WSW 54	267.5	0.0	531.6	128.6	
1996	28.4	11.8	20.2	106.0		106.0	15.1	WNW 41	247.3	2.8	471.4	71.2	

DATE	Montreal - Dorval (AUTO) Type B																								Juillet 1996			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	199	211	208	204	199	191	202	211	222	229	240	242	253	263	275	276	276	273	259	247	238	230	225	21				
2	209	190	176	182	175	177	197	211	222	226	239	249	262	272	263	271	266	260	247	240	237	225	217	20				
3	219	200	211	195	190	193	193	193	195	205	204	208	219	225	240	235	231	223	213	210	203	198	195	19				
4	186	178	174	170	168	164	163	165	164	170	171	172	174	181	178	175	172	173	169	167	167	165	165	16				
5	157	159	159	154	147	147	161	174	189	205	222	235	241	250	256	257	259	237	231	222	221	212	205	20				
6	193	202	192	195	198	193	198	201	201	205	206	215	216	213	211	213	226	219	220	205	164	153	144	13				
7	150	142	144	139	128	135	168	174	180	195	198	210	223	236	234	236	216	209	202	205	207	209	199	18				
8	189	193	188	170	172	174	196	197	206	212	228	232	231	236	246	254	249	245	239	222	207	199	206	20				
9	200	191	191	178	181	171	187	194	204	211	219	228	223	239	246	229	243	235	218	205	179	178	151	14				
10	149	153	146	135	133	131	148	163	175	170	191	193	195	186	194	198	202	195	200	191	179	177	165	15				
11	152	149	145	141	139	155	164	167	179	188	200	206	223	241	230	245	236	243	236	224	218	208	188	18				
12	184	170	156	161	175	165	179	191	195	200	221	233	245	259	263	269	259	250	251	230	218	214	204	20				
13	219	201	199	189	200	206	205	206	209	212	219	230	235	233	223	224	224	224	222	220	212	205	197	191				
14	170	173	181	187	187	192	203	203	215	222	238	247	265	271	267	257	252	215	234	221	220	216	206	20				
15	194	184	188	185	182	198	210	217	232	236	243	247	244	232	228	225	232	232	231	222	215	209	219	210				
16	205	199	196	191	189	188	194	204	215	219	232	243	249	244	186	193	195	202	202	205	198	195	189	18				
17	187	184	181	181	177	181	190	197	215	219	227	235	249	258	271	272	268	271	263	244	219	219	223	210				
18	204	195	183	186	174	181	194	205	215	219	231	234	252	263	275	282	279	271	268	251	234	237	233	22				
19	224	213	206	205	212	209	211	214	210	222	229	225	224	218	216	221	193	205	205	181	170	167	162	161				
20	146	153	151	147	146	141	145	148	154	160	167	171	179	188	190	196	198	200	199	202	201	198	199	193				
21	183	173	166	159	158	157	167	176	192	202	212	221	231	245	247	249	253	249	241	219	174	167	199	193				
22	138	146	139	129	123	129	158	176	190	205	216	234	251	258	263	263	260	260	253	229	205	195	204	181				
23	196	188	187	176	174	171	175	198	207	216	218	228	222	238	253	234	228	236	222	212	196	197	183	180				
24	178	175	175	169	164	170	188	198	209	218	235	242	257	264	271	272	269	264	258	232	215	214	214	215				
25	219	215	207	205	188	197	202	209	213	221	236	238	236	229	229	258	252	222	223	218	193	200	200	192				
26	206	200	192	186	185	188	188	195	198	207	213	232	241	236	250	253	252	247	238	220	200	192	177	190				
27	186	189	176	167	167	165	173	181	192	202	213	223	219	230	229	233	225	224	224	209	176	172	167	167				
28	167	160	154	137	145	134	157	182	194	205	204	216	228	227	241	239	236	235	229	198	184	174	174	175				
29	174	153	136	151	128	146	157	184	208	218	235	239	244	251	249	260	255	249	254	249	243	238	229	220				
30	202	191	186	191	192	190	198	200	201	204	207	213	221	221	212	219	223	218	210	205	203	201	200	195				
31	193	194	194	182	182	186	186	188	193	195	174	173	190	190	200	210	200	195	193	187	183	182	178	177				

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

Montreal - Dorval (AUTO) Type B																								Juillet 1996								
Heure normale locale: Est Local standard time : Eastern																								Rafale max Peak Gust								
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	hours time	day						
1	S	SSW	SW	SW	SW	WSW	WSW	SW	SW	SSW	SW	SW	SW	SSW	W	WSW	WSW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	39	15	1				
15	19	19	19	17	17	11	13	15	13	17	20	24	24	24	30	28	24	26	22	22	22	20	22	13	SE	39	15	1				
2	WSW	WSW	WSW	SSW	SSW	WSW	WSW	W	WSW	SW	SSW	SSW	SW	SSW	SW	SW	SW	SW	WSW	E	ESE	20	22	13	NNE	39	15	1				
15	13	7	13	9	7	9	15	11	11	13	17	15	17	19	17	15	11	9	7	4	6	9	9	NNE	NNE	37	18	3				
3	ESE	SE	NE	N	NE	NE	NE	NE	NE	NNE	NNE	N	N	NE	N	NNE	NE	NNE	NNE	NNE	NE	NNE	NNE	NNE	NNE	NNE	NNE	37	18	3		
11	6	7	6	4	11	9	11	13	11	11	15	11	15	19	22	26	19	24	28	24	20	20	19	19	NNE	NNE	37	18	3			
4	NNE	N	N	N	N	N	N	NNW	NW	NW	NW	NW	NNE	NNE	37	18	3															
28	22	26	24	22	24	24	28	30	20	20	26	22	19	22	24	19	17	17	15	11	15	11	11	11	11	41	2	4				
5	WNW	WNW	W	WNW	WNW	WNW	WNW	W	WNW	WNW	W	WNW	W	WNW	W	WNW	W															
15	11	13	13	17	15	15	17	15	17	22	26	20	24	20	26	30	19	15	17	17	22	19	19	24	46	1	5					
6	SW	SW	SW	SW	SW	SW	WSW	WSW	WSW	W	WNW	W	WNW	WNW	NW	WNW	WNW	WNW	WNW	WNW	WNW											
19	30	22	24	26	17	26	26	24	33	31	33	24	28	20	19	20	19	19	11	11	13	11	11	7	52	10	6					
7	SW	WSW	SW	SW	WSW	SW	SSW	SW	SSW	S	SSE	SSE	SE	SSE	SE	SE	ESE	ESE	ESE	ESE	ESE											
6	11	9	9	9	7	6	6	13	6	9	9	6	11	11	15	15	13	11	13	7	15	9	7	7	7	7	7	7				
8	SSW	SW	W	N	C	SSW	SSW	W	WSW	WSW	SSW	SSW	WSW	WSW	WSW	W	WSW	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW				
6	9	6	4	0	4	13	13	13	15	22	24	22	28	30	24	24	19	20	9	0	7	7	9	9	41	14	8					
9	SW	W	SW	SW	SW	WSW	SSW	SW	WSW	SW	SW	SW	SW	SW	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW					
11	13	13	13	6	11	13	11	15	26	22	31	24	30	26	19	17	28	22	17	11	13	11	11	11	39	13	9					
10	W	WNW	W	WSW	SW	WSW	W	W	WSW	WSW	M	WSW	W	W	W	W	W	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW					
11	6	7	11	9	13	13	15	22	20	28	M	26	28	30	35	22	26	22	19	20	17	15	41	15	10							
11	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW																
15	17	13	17	17	19	13	20	19	22	26	26	22	30	22	28	28	28	24	17	11	19	46	17	11								
12	SW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	SW	S	S	S	S	SSE	SSE	SSE	SSE	SSE													
13	13	9	13	11	7	11	15	13	7	9	9	11	9	13	20	11	7	7	9	4	0	0	N	N	N	N	N					
13	E	SSE	M	NNW	NE	NE	SE	ESE	ESE	ESE	ESE	ESE																				
6	7	M	4	7	9	11	17	17	13	6	15	15	15	19	17	11	9	9	13	17	15	15	15	15	15	15	15					
14	NW	WNW	WNW	W	WSW	WSW	S	S	SW	S	SSE	SE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE											
7	4	7	6	4	9	7	9	15	7	7	4	13	17	19	17	11	15	11	9	11	7	11	13	13	13	13	13					
15	ESE	SSE	SE	SE	ESE	E	ESE	ESE	E	E	ESE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE												
7	7	9	7	4	6	7	11	13	13	9	13	17	15	20	20	13	15	17	24	22	24	20	20	28	39	1	15					
16	SW	SSW	SW	SW	SW	SW	W	SSW	SW	SW	SW	SW																				
30	22	22	22	22	22	24	22	22	24	15	22	26	26	15	20	19	19	26	11	20	17	22	20	20	63	14	16					
17	WSW	W	W	W	W	W	W	WSW	WSW	WSW																						
22	20	19	19	17	15	20	19	22	24	26	19	22	24	24	26	24	22	22	15	11	11	19	13	35	15	17						
18	W	W	WSW	SSW	SW	SW	SW	SW	SW	W	W	W	W	W	W	SSW	SSW	SSW	SSW													
13	13	6	7	7	9	9	13	13	13	7	11	15	15	13	13	15	11	9	7	6	9	11	11	11	11	11						
19	SE	SE	SE	C	SE	SE	SE	SE																								
11	11	7	0	7	7	7	15	13	20	20	11	7	13	11	13	28	33	39	31	24	17	22	26	59	16	19						
20	WNW	WNW	WNW	WNW																												
17	19	26	26	24	30	26	28	30	41	31	35	33	30	30	35	31	28	24	28	20	20	20	26	59	10	20						
21	NW	WNW	WNW	W	WNW	W	WNW	WNW	WNW	WNW																						
26	19	22	20	22	24	26	24	19	17	24	19	22	22	19	26	20	13	15	13	11	6	4	39	15	21							
22	SW	S	WSW	WSW	WSW	WSW	WSW	WSW	S	S	S	S	S	S	S	SSW	SSW	SSW	SSW													
6	4	6	7	9	9	6	7	7	7	9	13	11	13	17	19	19	19	19	11	9	7	9	9	9	9	9						
23	SSE	S	SSE	S	SSE	SSE	SSE	S	SSE	SW	SSW	SSW	SSW	SSW	SSW	SE	SE	SE	SE													
6	6	6	4	6	4	4	4	4	9	11	9	7	9	7	9	19	19	19	19	17	17	17	17	17	17	17						
24	SSE	SSE	S	S	SSE	SSE	SSE	SSE	SSE	SSW	SSW	SSW	SSW	SSW	SSW	S	SSE	SSE	SSE													
7	7	6	7	7	9	7	9	11	13	9	13	13	9	7	7	9	15	13	15	15	15	15	15	15	15	15						
25	SE	S	ESE	SE	SE	ESE	ESE	SE	SSE	S	S	S	S	S	SW	SW	SE	SE	SE													
19	7	6	9	9	9	13	9	15	15	13	9	6	15	7	13	19	28	7	4	7	9	6	41	13	25							
26	SW	WSW	SW	WSW	SW	WSW	WSW	SW	WSW	SW	WSW	SW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W					
9	9	7	7	4	6	7	15	17	17	15	19	15	20	22	24	24	22	11	13	13	11	9	11	33	16	26						
27	SW	SW	SW	WSW	WSW	WSW	WSW	W	WNW	WNW	W	W	W	W	W	WNW	WNW	WNW														
6	9	13	15	15	9	7	11	15	9	13	26	26	26	26	26	26	26	24	15	19	15	9	9	9	37	13	27					
28	N	NNW	NNW	C	WSW	W	W	W	NNW	NNW																						

Montreal - Dorval (AUTO) Type B												Juillet 1996													
Hourly dew points												July 1996													
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	189	184	168	163	158	157	161	165	171	173	172	174	173	176	159	149	149	140	151	158	156	158	146	149	
2	147	146	144	150	157	154	153	155	163	165	171	173	178	162	168	159	159	150	167	162	170	158	165	170	
3	164	171	172	174	170	166	169	172	175	180	180	182	180	174	181	175	166	161	160	155	160	165	162	162	
4	158	156	162	158	161	158	158	160	160	165	168	166	167	167	169	165	167	167	163	161	158	153	151	150	
5	148	148	145	138	130	125	130	134	136	136	130	110	137	135	148	144	135	118	116	120	132	144	141	124	
6	140	134	141	138	138	138	141	149	154	128	118	121	117	113	121	117	115	111	111	112	119	122	121	118	
7	119	120	124	123	117	124	146	148	151	141	151	147	131	146	148	139	138	155	150	150	148	164	148	171	
8	173	176	180	169	171	174	181	182	185	180	174	164	162	162	157	163	153	144	152	143	155	169	164	164	
9	158	147	146	150	150	152	152	149	149	151	150	153	146	148	158	148	144	131	129	133	128	131	124	125	
10	128	133	125	119	122	121	131	129	128	121	129	118	118	116	117	121	126	124	120	125	119	119	115	124	
11	134	134	128	121	114	114	131	128	128	132	138	130	143	141	142	148	139	150	144	134	123	122	114	129	
12	111	109	113	113	112	123	138	140	141	151	147	136	140	148	143	143	131	119	141	152	154	158	154	155	
13	152	157	158	164	163	159	162	167	174	177	180	188	188	190	186	187	181	180	180	178	178	180	181	178	
14	167	171	180	181	181	185	191	189	192	190	190	189	195	196	194	189	182	183	201	204	205	200	200	195	192
15	189	180	183	179	177	186	192	201	208	210	210	213	225	226	224	225	231	231	230	219	211	203	203	192	
16	193	190	186	181	178	181	183	188	186	186	191	188	188	189	169	171	174	167	164	169	154	163	168	164	
17	162	160	157	156	156	156	159	164	173	171	173	176	175	176	173	168	172	173	165	164	167	174	175	176	
18	176	176	171	173	168	175	181	187	184	182	193	199	196	195	205	208	197	187	188	183	195	196	193	187	
19	185	186	190	189	183	186	185	187	196	204	206	213	219	212	211	217	153	157	151	119	112	119	112	111	
20	114	117	109	98	97	98	98	100	103	96	93	94	89	88	89	88	97	95	96	99	87	83	83	83	
21	85	84	86	89	89	90	98	102	107	114	113	115	125	127	118	109	104	98	107	105	122	115	111	110	
22	109	111	121	112	113	125	141	141	150	152	164	176	173	165	138	122	138	142	137	143	146	145	140	151	
23	154	149	150	153	155	157	163	160	146	150	164	173	161	180	170	173	168	180	169	170	168	170	164	166	
24	168	167	169	165	161	163	173	176	181	180	191	192	170	165	162	176	177	179	183	181	180	180	180	184	
25	173	171	181	177	170	177	175	182	186	196	193	195	196	191	210	207	192	172	176	174	176	185	185	184	
26	190	180	173	170	169	177	178	181	181	184	189	191	184	168	179	172	163	163	164	151	146	147	146	153	
27	155	158	156	149	151	153	158	163	162	160	165	167	153	155	150	148	142	145	144	135	134	135	133	137	
28	135	138	135	131	130	126	150	148	131	130	138	113	131	112	116	101	100	96	111	120	118	116	118	116	
29	118	134	125	139	125	135	143	150	154	140	140	129	125	137	141	143	144	147	146	135	131	130	129	138	
30	166	171	172	172	169	169	171	172	172	163	158	161	166	157	173	167	166	160	157	149	150	153	153	152	
31	153	152	156	166	168	170	165	166	165	165	164	169	177	177	178	179	170	169	167	161	162	163	165	164	

Unités / Units: 0.1 °C

M = Manquant / Missing

Montreal - Dorval (AUTO) Type B												Juillet 1996												
Hourly relative humidities												July 1996												
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	94	85	78	77	77	81	77	75	73	71	66	66	59	49	46	46	44	51	58	60	64	61	66	
2	68	76	82	82	89	86	76	70	69	68	66	63	60	51	56	50	52	51	61	62	66	66	72	79
3	71	83	78	88	88	84	86	88	86	86	85	79	73	70	69	67	68	72	71	76	81	81	84	
4	84	87	93	93	96	96	97	97	97	97	98	96	96	92	94	94	97	96	96	94	93	91	92	
5	94	93	91	90	90	87	82	77	71	65	56	45	52	49	51	50	46	47	48	52	57	65	67	58
6	71	65	72	70	68	70	70	72	74	61	57	53	53	56	54	49	50	50	55	55	58	82	86	87
7	82	87	88	90	93	97	87	85	83	71	74	67	66	56	57	58	55	61	64	74	71	70	68	91
8	90	90	95	99	99	100	91	91	88	82	82	72	66	65	63	58	57	55	65	67	76	79	79	
9	77	76	75	84	82	89	80	75	71	69	65	63	62	57	58	60	54	52	57	63	72	74	84	90
10	87	88	87	90	93	94	90	80	74	73	67	62	61	64	61	61	62	64	60	66	68	72	72	
11	89	91	90	88	85	77	81	78	72	70	67	62	61	54	58	55	56	56	57	58	62	67	72	72
12	62	67	76	73	67	76	76	73	73	73	63	54	52	50	48	46	45	44	50	61	67	70	73	72
13	66	76	77	85	79	74	76	78	80	80	79	77	75	77	80	80	77	76	77	81	86	90	92	
14	98	99	99	96	96	96	93	92	87	82	74	73	66	63	62	63	66	62	63	67	71	76	84	
15	97	98	97	96	97	93	89	91	86	85	82	81	89	96	98	100	99	99	99	98	98	96	91	89
16	93	95	94	94	93	96	93	91	84	82	78	71	69	71	90	87	88	80	79	80	76	82	88	
17	85	86																						



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SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Août 1996

Montreal - Dorval (AUTO)

August 1996

LAT 45° 28N LONG 73° 45W				ALTITUDE 36 METRES (NMM) ÉLEVATION 36 METRES (ASL)				HEURE NORMALE UTILISÉE STANDARD TIME USED				DE L'EST Eastern									
DATE	TEMPÉRATURE TEMPERATURE			DEGRÉS-JOURS DEGREE-DAYS			HUMIDITÉ REL. REL. HUMIDITY		CHARGE THUNDERSTORM	PRÉCIPITATIONS PRECIPITATION			VENTS WINDS			INSOLATION EFFECTIVE BRIGHT SUNSHINE					
	MAXIMALE MAXIMUM °C	MINIMALE MINIMUM °C	MOYENNE MEAN °C	DE CHAUFFE HEATING Base 18 °C	DE CROISANCE GROWING Base 5 °C	DE RÉFRIGÉRATION COOLING Base 18 °C	MAXIMALE MAXIMUM %	MINIMALE MINIMUM %		PLUIE (HAUTEUR) RAINFALL	NEIGE (HAUTEUR) SNOWFALL	PRÉCIP. TOTAL TOTAL PRÉCIP.	NEIGE AU SOL SNOW ON GROUND	VITESSE MOYENNE AVG SPEED	DIRECTION DOMINANTE	PRAV. DIRECTION	VITESSE MOYENNE MAX SUR 2 MIN 4 DIRECTION	MAX 2 MIN MEAN SPEED & DIRECTION			
1	21.2	15.4	18.3		13.3	0.3	100	83	1	5.0		5.0				5.3	NE	NNE*	9	0.9	
2	23.6	14.8	19.2		14.2	1.2	100	69								9.9	SSW*	WSW*	17	7.8	
3	27.2	16.2	21.7		16.7	3.7	99	50								7.5	SSW	SSW*	13	12.5	
4	27.7	15.1	21.4		16.4	3.4	98	57								8.4	SSW	SSW*	15	12.9	
5	29.4	18.1	23.8		18.8	5.8	95	52								7.9	SW	SSW*	13	13.4	
6	30.1	18.1	24.1		19.1	6.1	99	40								6.6	S	SSW	15	13.4	
7	31.5	18.7	25.1		20.1	7.1	93	55								9.4	S	SSW*	15	9.2	
8	30.0	21.2	25.6		20.6	7.6	94	69		0.5		0.5				16.5	SW	SW	31	1.6	
9	27.9	16.2	22.1		17.1	4.1	98	50		0.5		0.5				14.3	W	SW*	20	9.0	
10	22.3	11.8	17.1	0.9	12.1		93	47												8.0	
11	21.9	8.2	15.1	2.9	10.1		92	42								7.8	SSW*	SW*	17	13.4	
12	24.4	10.9	17.7	0.3	12.7		87	53								9.1	S*	S	20	7.6	
13	25.5	15.5	20.5		15.5	2.5	94	65								15.2	SW	SW	24	7.4	
14	25.3	14.7	20.0		15.0	2.0	84	48								10.5	N	SW	17	13.5	
15	29.0	15.2	22.1		17.1	4.1	95	48	1	4.5		4.5				12.8	E*	SE	28	11.9	
16	26.0	18.0	22.0		17.0	4.0	96	69		1.0		1.0				13.0	SW	WSW	24	4.2	
17	25.8	16.0	20.9		15.9	2.9	98	51								9.9	WSW*	W	19	11.2	
18	27.2	13.3	20.3		15.3	2.3	98	50								10.0	WSW	SW	17	7.5	
19	25.0	11.3	18.2		13.2	0.2	95	45		6.5		6.5				6.5	SE	N	11	13.0	
20	28.6	11.2	19.9		14.9	1.9	99	52								7.3	S*	SW	19	9.8	
21	28.9	15.4	22.2		17.2	4.2	99	51		0.5		0.5				12.3	W	W	22	9.5	
22	27.6	12.1	19.9		14.9	1.9	100	54								9.5	SSW	SSW	17	12.0	
23	26.1	15.1	20.6		15.6	2.6	98	80		4.0		4.0				10.3	WSW	WSW	19	2.5	
24	26.6	13.8	20.2		15.2	2.2	99	36								10.4	W	W	26	11.7	
25	29.3	16.4	22.9		17.9	4.9	90	43								26.0	SW	WSW	52	12.4	
26	20.5	14.3	17.4	0.6	12.4		94	55		TR		TR				8.1	NE	N*	15	2.9	
27	20.7	13.3	17.0	1.0	12.0		93	53		TR		TR				14.1	NE	NE*	20	6.4	
28	25.1	11.7	18.4		13.4	0.4	89	56								9.6	NNE*	NNE	19	10.5	
29	26.8	13.9	20.4		15.4	2.4	99	38								15.5	WSW	WNW	24	12.0	
30	22.4	8.9	15.7	2.3	10.7		87	42								15.9	WSW	SW	23	10.9	
31	27.0	15.6	21.3		16.3	3.3	82	49								18.0	WSW	SW*	26	10.6	
	MOY. 26.1	MOY. 14.5	MOY. 20.4	TOTAL YEAR	8.0	TOTAL YEAR	476.1	TOTAL YEAR	81.1	MOY. 94	MOY. 53	TOTAL YEAR	2	TOTAL YEAR	22.5	MOY. 22.5	DOMINANTE SW	MAXIMALE WSW	52	TOTAL 289.6	
NORMALE																					
NORMAL	24.6	14.1	19.4	TOTAL MONTH	25.2	TOTAL MONTH	446.0	TOTAL MONTH	68.2				6	100.3	0	100.3		11.0	SW		240.8
SOMMAIRE DE DEGRÉS-JOURS/DEGREE-DAY SUMMARY												JOURS AVEC PRÉCIPITATIONS TOTALES: DAYS WITH TOTAL PRECIPITATION				JOURS AVEC CHUTES DE NEIGE: DAYS WITH SNOWFALL					
AU-DESSOUS DE 18°C BELOW 18°C	ANNÉE THIS YEAR	ANNÉE PRECEDENTE PREVIOUS YEAR	NORMALE NORMAL	AU-DESSUS DE 5°C ABOVE 5°C	ANNÉE THIS YEAR	ANNÉE PRECEDENTE PREVIOUS YEAR	NORMALE NORMAL			0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	50.0 OU PLUS	0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	50.0 OU PLUS		
TOTAL DU MOIS TOTAL FOR MONTH	8.0	12.4	25.2	TOTAL DU MOIS TOTAL FOR MONTH	476.1	TOTAL DU MOIS TOTAL FOR MONTH	471.1	TOTAL DU MOIS TOTAL FOR MONTH	446.0	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE	
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	10.8	12.4	34.3	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	1629.0	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	1754.6	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	1640.7	8	5	4									

Données non contrôlées/Data not validated

Les précipitations ont un seuil mesurable de 1,0 mm
Measurable threshold of precipitation is 1,0 mm

1. Journée climatologique/Climatological Day
2. Normale/Normal 1961-1990
3. TR=Trace
4. M=Manquant/Missing E=Estimé/Estimated
5. Pas de valeur/No entré=Pas d'événement/No occurrence
6. C=Calmé/Calm

Canada

Température horaire Hourly temperature												Montreal - Dorval (AUTO)												Août 1996 August 1996					
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	177	177	178	179	177	176	177	186	195	199	204	199	188	190	203	208	210	198	195	186	179	180	170	157					
2	169	169	165	163	155	150	167	167	170	177	187	197	198	216	223	230	230	233	223	204	201	202	196	178					
3	179	183	169	177	174	174	182	198	208	223	237	246	250	255	258	264	264	261	252	236	202	207	207	174					
4	198	172	183	152	165	163	187	200	215	236	244	257	267	272	275	274	274	269	263	250	238	225	209	208					
5	198	202	190	189	186	182	202	215	234	241	255	265	279	287	289	289	290	281	278	263	255	238	236	229					
6	221	204	195	184	193	205	214	229	236	248	267	278	289	292	293	297	300	293	282	258	246	236	242	240					
7	229	214	201	214	195	195	206	229	240	265	270	290	297	304	310	308	302	293	293	272	254	251	258	254					
8	252	240	232	225	217	219	223	242	254	261	262	271	277	289	285	284	272	249	238	233	213	224	223	223					
9	223	221	216	215	216	210	214	219	231	228	235	236	248	250	268	278	261	264	252	225	212	202	182	168					
10	164	168	164	150	146	142	161	171	172	177	185	197	209	194	200	207	222	205	209	182	167	149	135	139					
11	137	120	104	96	87	100	105	132	153	167	181	191	200	215	210	209	210	211	201	182	168	160	150	148					
12	130	128	125	145	138	132	131	163	176	192	201	209	221	228	236	240	241	239	232	217	216	219	203	191					
13	194	204	200	199	194	194	197	199	204	216	231	239	234	240	244	243	243	238	236	216	195	187	178	170					
14	175	155	160	163	158	150	157	174	188	201	213	224	232	236	240	239	248	239	231	216	200	184	184	169					
15	163	173	175	173	166	162	166	183	203	222	234	249	262	273	280	287	281	275	265	256	248	239	202	199					
16	198	204	190	198	191	194	199	205	214	217	215	238	236	212	209	237	244	237	225	205	194	187	187	188					
17	189	188	182	183	185	183	184	194	209	212	229	231	231	245	247	254	251	245	233	205	187	182	185	178					
18	165	172	183	170	167	179	178	183	193	204	205	214	231	234	248	251	267	252	244	240	232	221	209	199					
19	193	133	136	139	139	116	138	166	191	208	223	231	227	236	237	243	244	244	229	214	176	177	174	149					
20	160	170	167	161	134	152	139	158	180	213	227	239	263	267	274	282	275	269	260	233	241	246	235	214					
21	207	213	212	212	214	212	216	222	232	239	247	249	263	277	282	268	283	275	256	216	204	192	193	189					
22	174	165	152	154	145	124	141	177	195	211	223	244	254	262	265	273	272	272	259	252	240	222	228	225					
23	220	212	210	202	199	206	213	219	220	224	236	240	254	250	258	251	215	227	233	223	210	202	193	180					
24	180	152	156	152	142	138	149	168	191	213	228	244	252	262	256	254	256	248	228	196	181	179	195	197					
25	191	191	191	168	171	182	185	197	217	239	255	268	282	276	286	284	272	265	255	246	239	230	219	209					
26	210	197	191	183	174	163	170	180	186	191	184	190	192	196	199	196	196	174	180	177	175	177	169	166					
27	162	154	167	163	156	147	149	157	166	186	193	200	199	198	192	195	197	205	198	188	180	175	169	150					
28	144	133	127	132	122	119	128	138	150	181	201	225	239	236	250	247	243	237	225	198	181	168	165	156					
29	156	153	156	152	156	155	154	163	181	199	232	226	239	251	255	263	251	243	226	198	191	182	162	154					
30	149	145	133	131	116	95	105	141	156	166	180	189	199	211	214	219	217	208	198	192	189	187	186	177					
31	170	166	172	164	160	160	163	164	185	198	210	222	240	254	259	265	257	250	235	219	201	210	184	176					

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

		Montreal - Dorval (AUTO)																				Août 1996 August 1996						
		Heure normale locale: Est Local standard time : Eastern																				Rafale max Peak Gust						
DATE		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	E	NE	ENE	ENE	NE	E	E	E	C	NE	NE	NNE	SE	NW	NE	N	NNE	ESE	SSE	N	N	NNE	NE	SSE				
6	6	6	6	4	7	7	4	6	0	6	7	4	4	6	7	6	9	9	4	6	4	4	4	4				
2	S	S	SSW	S	C	WSW	WSW	WSW	W	SW	W	WSW	SW	W	W	W	SSW	SW	W	WNW	SSW	SSW	SSW	WSW				
4	6	6	6	6	0	7	9	11	6	11	9	17	11	11	11	11	15	15	9	9	13	9	4	4	4			
3	SSW	S	S	SSW	SW	SSW	WSW	SSW	SW	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW	NW	S	S	W				
6	11	7	7	7	6	9	6	6	9	11	13	13	9	11	6	7	11	9	6	4	6	6	6	6				
4	C	W	C	SW	SW	SSW	SSW	SSW	SW	S	SSW	S	SSW	S	SSW	S	SSW	SSW	SW	SSW	SW	SSW	SSW	SSW				
0	4	0	6	4	4	9	9	6	7	9	11	15	13	15	13	15	11	11	11	11	7	6	4	7				
5	S	SSE	SW	SW	SW	SW	SW	SSW	SW	SSW	SSW	SSW	SSW	SSW	S	S	SSE											
7	4	4	7	7	7	7	7	7	4	11	11	9	11	9	11	13	13	11	11	7	9	9	4	6	4			
6	S	C	SW	SW	W	C	S	S	SW	S	S	SW	SSW	S	C	SE	SE	SSE										
6	0	4	6	4	0	4	6	7	7	6	9	9	11	15	11	9	9	7	9	0	6	6	6	6				
7	SSE	SE	C	SE	SE	SE	SSE	SE	SSE	S	SSW	S	SSE	SSE	S	S												
4	4	0	4	7	7	4	4	4	7	7	11	13	15	15	15	15	15	11	7	9	7	11	13	15		WSW		
8	S	S	SSE	SE	SE	SSE	SSE	S	S	SW	W	WSW	WSW	WSW	WSW													
13	11	6	11	11	9	11	13	15	19	19	17	15	24	24	31	24	26	19	11	11	15	17	17	41	16	8		
9	WSW	WSW	WSW	WSW	W	WSW	NNW	NNW	NNW	NNW																		
17	15	15	15	15	11	9	11	13	15	17	13	17	19	20	19	19	20	20	19	13	13	15	7	9	31	13	9	
10	NW	WNW	NW	NW	NW	NW	NW	NNW	NNW	NW	NNW	NNW	NW	NNW	NNW	NNW	N											
7	7	11	9	4	7	6	9	9	9	9	4	11	9	13	4	13	13	19	15	15	13	13	13	9				
11	N	N	NNW	NW	NW	N	NW	C	C	SSE	S	SSW	SW	SSW	SW	S	S	SSW	SSW	SW	SSE	SSE	SSE	SSE				
15	7	9	6	4	7	6	0	0	0	6	4	7	15	15	17	17	15	11	9	6	7	9	7					
12	C	SE	C	ESE	ESE	ESE	ESE	C	C	ESE	SW	WSW	S	S	SE	SSE	SSE	SSE										
0	6	0	7	6	6	0	0	4	4	7	6	7	11	13	11	13	17	13	13	13	20	11	9					
13	S	S	S	SW	SSW	W	NNW	NNW	NNW	NNW																		
13	15	17	22	13	17	17	20	13	22	24	22	15	20	17	20	22	19	13	11	11	7	6	4	33	10	13		
14	N	NNW	N	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N	N	SSW	SSW	SSW	C	SE	SE	SE				
4	9	6	6	7	13	15	15	15	11	9	11	13	17	15	11	15	15	9	4	0	7	6						
15	SE	SE	E	E	E	ESE	ESE	E	E	E	E	E	E	E	SE	SE	NNW	ENE	ESE									
6	11	6	7	7	6	9	7	9	11	13	11	13	17	19	20	28	22	15	20	20	15	15	6	35	16	15		
16	SSE	NNE	C	SSE	SSE	SSE	SSE	S	SSW	SW	SSW	SW	SSW	SW	S	WNW	WSW	SW	SW	SSW	WSW	WSW	WSW	WSW	WSW	WSW		
4	6	0	13	9	11	13	11	20	15	20	15	13	22	20	24	22	19	13	9	9	7	7	6					
17	SW	SW	WSW	NNW	NNW	NNW	NNW	NNW	NNW																			
7	7	6	4	6	6	6	6	7	7	4	4	11	13	17	17	19	17	15	13	7	9	9	9	9				
18	W	SW	SW	WSW	NNE	NNE	NNE	NNE	NNE	NNE																		
7	11	11	7	9	17	13	13	11	11	7	6	6	6	6	11	13	13	15	9	9	11	13	15	7				
19	E	C	NNW	NNW	N	NNE	NNE	N	N	N	C	NE	SE	SSW	S	SSW	WSW	WSW	SSE	C	SE	SE	SE	SE	SE	SE		
6	0	6	6	9	6	6	6	11	7	0	7	4	9	7	9	6	6	7	4	0	9	9	7	4				
20	SE	ESE	E	ESE	C	NE	N	N	C	C	ESE	S	SE	SSE	SSE	SSE	SSE	SSE	SSE	SE	WSW	C	E	ENE	SW	SSW	WSW	
7	9	7	6	0	4	7	7	0	0	6	11	11	7	7	11	13	13	4	0	4	4	19	13	35	22	20		
21	S	SSW	WSW	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W		
11	11	13	11	13	11	13	11	7	11	15	9	17	9	19	11	17	22	19	13	11	11	7	6					
22	N	NNW	NNW	N	N	NW	NNW	N	C	S	SSW	SSW	SW	SSW	SW	S	S	SSW	SW	SW	SSW	S	SSW	SSW	SSW	SSW	SSW	
9	7	7	4	4	9	4	7	0	4	9	9	13	11	13	11	9	13	15	11	13	11	13	17					
23	SSW	W	S	WSW	NNW	NNW	NNW	NNW	NNW	NNW	WNW																	
13	7	13	7	7	7	15	17	13	11	15	11	15	17	17	19	19	11	11	6	6	4	4	4	6	41	16	23	
24	N	NW	NW	NW	NW	W	C	WNW	N	N	NNW	N	NNW	N	NNW	N	NNW											
4	6	4	4	7	6	0	6	7	7	4	13	9	11	22	21	26	15	13	9	7	7	13	15	31	14	24		
25	SSW	SSW	SW	WSW	SW	SW	SW	SW	SSW	SW	SW	SW	SW	WSW														
15	19	22	9	9	20	20	24	20	28	26	35	31	46	41	52	43	43	39	28	24	17	13	3	69	13	25		
26	NNE	N	N	N	NNE	NNE	NNE	NNE	NE	NE	NE	NE	NE	NE	E	NE	NNE	NE	NE	N	NE	ESE	NE	E	C	SSE	SE	
15	11	13	15	9	11	7	15	15	13	13	9	6	7	4	9	6	7	6	6	6	0	4	4					
27	C	C	C	NNE	NNE	NNE	NNE	NNE	NE	NE	NNE	NE	NE	NE	NE	NNE												
0	0	0	4	9	13	17	19	15	19	19	19	17	15	20	19	17	20	13	15	9	15	15	11					
28	NNE	NNE	NNE	NNE	N	NNE	NNE	NNE	NE	NE	NE	E	S	C	NW	W	SW	SSW	SSW	SW	WSW	WSW	WSW	WSW	WSW	WSW		
9	13	11	17	17	13	19	11	13	7	6	6	0	9	7	11	9	9	7	7	7	9	9	9	9	9	WNW		
29	WSW	WSW	WSW	SW	SW	SW	WSW	NNW	NNW	NNW	NNW	NNW	NNW	WNW														
9	9	9	9	7	7	15	19	17	19	19	19	22	15	19	19	19	20											

Points de rosée horaires Hourly dew points												Montreal - Dorval (AUTO)										Août 1996 August 1996						
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	163	163	164	164	160	162	164	169	172	172	174	169	182	184	192	183	180	177	181	181	175	176	164	157				
2	169	169	165	163	155	150	164	165	167	165	167	169	165	166	169	174	174	166	165	171	176	176	168					
3	171	178	165	174	172	172	176	183	183	187	193	196	189	181	179	153	154	148	145	154	158	163	169	160				
4	180	163	167	148	158	160	180	185	191	202	201	202	200	181	184	184	181	180	175	172	187	182	191	192				
5	183	183	180	180	176	173	191	195	200	205	209	202	197	183	189	187	180	175	184	185	192	198	192	189				
6	181	181	181	182	185	182	196	202	202	204	202	210	210	184	190	176	155	144	160	168	165	167	185	188				
7	190	185	183	183	182	182	195	198	192	195	209	217	220	203	209	217	211	214	224	216	226	227	226	211				
8	196	195	197	199	194	195	197	203	209	217	218	222	227	229	222	221	214	216	216	196	203	206	206	212				
9	210	208	210	212	211	206	210	208	209	207	206	198	201	197	179	173	155	151	148	151	155	144	142	137				
10	133	139	139	134	134	128	146	138	138	137	137	130	117	123	123	113	114	113	91	81	79	79	85	84				
11	73	71	68	67	69	73	93	80	69	72	72	73	78	84	80	79	81	83	69	70	79	83	101	101				
12	94	95	94	101	101	101	110	120	130	131	120	128	122	140	149	148	154	156	170	170	172	152	150	151				
13	150	154	156	160	158	157	156	153	158	161	169	172	176	182	180	175	173	173	174	174	168	167	167	160				
14	156	140	133	125	122	119	122	122	113	112	113	117	116	122	132	129	129	131	132	138	137	137	150	137				
15	130	134	133	136	143	138	130	128	130	123	123	146	155	162	168	166	166	169	176	177	180	190	181	181				
16	190	190	182	177	177	179	180	180	178	182	179	194	191	172	187	195	183	178	196	180	178	177	178	181				
17	178	181	179	180	174	173	176	164	163	166	169	165	156	152	149	144	140	140	141	143	144	142						
18	140	155	173	165	164	171	169	172	174	176	176	168	174	169	170	164	155	157	150	157	156	146	132	136				
19	115	110	124	126	121	109	117	117	118	118	117	107	118	117	114	116	116	119	114	107	124	119	116	115				
20	113	111	118	127	119	134	125	136	136	147	150	147	156	161	176	190	198	197	198	186	177	182	195	202				
21	205	208	209	211	211	209	212	211	214	214	205	198	210	206	193	183	172	172	164	158	159	155	154	154				
22	153	152	145	144	135	124	135	138	139	144	153	164	160	163	167	172	170	174	179	188	194	192	180	178				
23	177	185	191	196	191	190	189	194	202	207	213	211	216	221	220	215	206	206	213	209	203	188	190	176				
24	162	148	150	146	141	137	145	153	144	138	135	116	91	113	94	107	112	122	113	114	115	125	159	145				
25	150	146	152	150	152	165	161	160	161	164	167	162	164	151	152	147	156	156	157	161	158	168	159	150				
26	140	132	133	128	130	116	128	102	98	100	92	102	105	111	114	112	139	134	138	137	138	140	149	151				
27	149	145	148	147	144	135	111	112	111	115	100	109	105	105	120	113	108	106	105	108	106	104	105	108				
28	114	109	100	102	104	101	103	109	117	130	137	148	156	153	156	154	159	155	153	152	153	148	144	133				
29	131	134	140	151	150	148	141	143	140	148	148	139	147	153	156	108	105	105	104	107	97	93	92	90				
30	86	84	84	81	75	75	84	95	82	86	88	90	98	105	102	92	81	90	102	101	109	109	124	128				
31	138	131	129	130	130	129	128	133	135	137	143	160	159	153	145	149	152	147	139	144	137	144	148	144				

Unités / Units: 0.1 °C

M = Manquant / Missing

Humidités relatives horaires Hourly relative humidities												Montreal - Dorval (AUTO)										Août 1996 August 1996						
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	92	92	92	91	90	92	92	90	87	84	83	83	96	96	93	86	83	88	92	97	98	98	96	100				
2	100	100	100	100	100	98	99	98	93	88	84	81	73	72	71	69	70	78	83	85	88	94						
3	95	97	97	98	99	99	96	91	86	80	76	74	69	64	62	51	51	50	52	60	76	76	79	91				
4	89	94	90	97	96	98	96	91	86	81	77	72	67	58	58	57	58	58	62	73	77	89	91					
5	91	89	94	95	94	94	93	88	81	80	76	68	61	53	55	54	52	53	57	62	68	78	76	78				
6	78	87	92	99	95	87	89	85	81	77	68	67	62	52	54	48	42	40	48	58	61	65	71	73				
7	79	84	89	83	92	93	83	75	65	69	65	63	63	55	55	58	58	63	66	72	85	87	83	77				
8	71	76	81	85	87	86	85	79	76	77	77	75	74	69	72	69	74	81	88	90	90	88	94					
9	92	92	96	98	97	98	98	93	87	88	84	79	75	72	58	53	52	50	53	63	70	69	77	82				
10	82	83	85	90	93	91	91	81	77	74	65	61	56	55	50	50	56	47	52	56	63	72	69	69				
11	65	72	79	82	88	83	92	71	57	53	49	46	45	43	43	43	44	42	48	56	60	72	73					
12	79	80	81	75	78	81	87	76	74	68	60	53	58	58	56	58	60	68	75	76	66	72	78					
13	76	73	76	78	80	79	77	75	71	68	66	70	70	68	66	65	67	68	77	84	88	93	94					
14	89	91	84	78	79	82	80	72	62	57	53	51	48	49	51	50	48	51	54	61	67	74	81	81				
15	81	78	76	79	86	86	79	70	63	53	50	53	52	51	51	48	50	52	58	62	66	74	88	89				
16	95	92	95	88	92	91	89	86	80	81	80	76	78	87	77	69	70	84	86	90	94	95	96					
17	93	96	98	98	93	94	93	89	75	74	68	68	66	58	56	52	51	55	66	75	77	79						
18	85	90	94	97	98	95	94	93	89	84	83	75	70	67	62	59	50	56	60	62	62	61	67					



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SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Montreal - Dorval (AUTO)

Septembre 1996

September 1996

DATE	TEMPÉRATURE			DEGRÉS-JOURS			HUMIDITÉ REL.		ORAGE THUNDERSTORM	PRÉCIPITATIONS			NEIGE AU SOL SNOW ON GROUND	VENTS			INSOLATION EFFECTIVE BRIGHT SUNSHINE HOURS			
	TEMPÉRATURE			DEGRÉS-JOURS			HUMIDITÉ REL.			PRÉCIPITATIONS				VENTS						
	MAXIMALE MAXIMUM °C	MINIMALE MINIMUM °C	MÉTIENNE MEAN °C	DE CHAUFFE HEATING Base 18 °C	DE CROISSANCE GROWING Base 5 °C	DE RÉFRIGÉRATION COOLING Base 18 °C	MÉTIENNE MEAN %	MÉTIENNE MEAN %		RÉF. PRECIP. REF. PRECIP.	TOTAL PRECIP. TOTAL PRECIP.	DIRECTION DOMINANTE PREVAILING DIRECTION		VITESSE MOYENNE AVG SPEED km/h						
1	28.3	14.7	21.5		16.5	3.5	88	49						7.0	SSW	SW*	13	12.1		
2	28.8	15.5	22.2		17.2	4.2	97	48						9.3	NNE	NNE	20	8.4		
3	27.7	15.1	21.4		16.4	3.4	91	52						8.5	N	NNE	17	11.1		
4	29.0	15.4	22.2		17.2	4.2	92	53						8.5	NNE*	S	13	10.9		
5	29.8	18.6	24.2		19.2	6.2	96	47						12.3	SW	W	22	11.1		
6	28.7	16.7	22.7		17.7	4.7	97	35						8.2	NE	NE*	17	10.6		
7	27.2	15.6	21.4		16.4	3.4	93	34		5.5				18.4	NE	SE	31	9.6		
8	19.6	14.9	17.3	0.7	12.3		100	79		34.5				19.4	ESE*	SE	33	0.1		
9	20.6	16.7	18.7		13.7	0.7	100	90		2.0				7.3	W*	W*	13			
10	21.6	13.2	17.4	0.6	12.4		100	71		1.0				6.0	NW	NNW	11	1.0		
11	24.6	11.1	17.9	0.1	12.9		100	54						7.1	ESE	ESE	15	11.0		
12	21.0	16.7	18.9		13.9	0.9	98	71		13.0				15.4	SE	SE	26			
13	21.7	13.0	17.4	0.6	12.4		93	61		1.5				18.8	NE	NNE*	26	5.1		
14	16.7	11.8	14.3	3.7	9.3		100	81		9.0				15.9	NE	NE	24	0.1		
15	14.9	11.2	13.1	4.9	8.1		100	91		2.5				13.7	NNE	NNE	20			
16	15.1	11.5	13.3	4.7	8.3		100	93		6.0				13.7	NNE	NNE*	19			
17	20.6	12.4	16.5	1.5	11.5		97	62						15.5	NNE	NE	24	7.4		
18	23.9	9.3	16.6	1.4	11.6		93	40						15.5	N	NNE	31	10.1		
19	23.1	7.6	15.4	2.6	10.4		85	39						10.8	NW	N*	17	11.3		
20	21.9	10.9	16.4	1.6	11.4		95	49						14.3	W	W	26	11.0		
21	24.0	11.8	17.9	0.1	12.9		93	48						14.5	WSW	WSW	28	10.5		
22	16.8	8.3	12.6	5.4	7.6		70	32						24.5	NE	NE*	30	1.0		
23	14.2	6.1	10.2	7.8	5.2		84	51						16.0	NNE	NNE*	26	10.0		
24	15.3	2.2	8.8	9.2	3.8		100	52		TR				9.1	SE	SSE*	17	4.6		
25	13.7	5.0	9.4	8.6	4.4		99	67		1.6				8.8	NNE	NNE	17	0.6		
26	18.1	4.8	11.5	6.5	6.5		100	42						10.8	WSW	W	22	9.1		
27	15.9	10.0	13.0	5.0	8.0		99	66		10.0				19.2	SE	SE	31	0.2		
28	17.6	10.4	14.0	4.0	9.0		100	94		25.0				23.1	SE	W	31			
29	18.3	10.1	14.2	3.8	9.2		97	58	1	3.5				23.1	SW	SW	30	6.7		
30	14.0	5.7	9.9	8.1	4.9		96	55						14.7	W	W	26	7.3		
	MOY. MEAN	MOY. MEAN	MOY. MEAN	TOTAL	TOTAL	TOTAL	MOY. MEAN	MOY. MEAN	TOTAL	I	TOTAL	TOTAL	TOTAL	MOY. MEAN	DOMINANTE PREVAILING	MAXIMALE MAXIMUM	TOTAL			
NORMALE NORMAL	21.1	11.5	16.3	80.9	340.3	31.2	95	58			115.1		115.1		13.6	SE	33	180.9		
	19.8	9.3	14.5	119.5	286.5	16.0				2	86.5	.0	86.5		12.0	SW			169.8	

SOMMAIRE DE DEGRÉS-JOURS/DEGREE-DAY SUMMARY

AU-DESSOUS DE 18°C BELOW 18°C	ANNÉE IN COURSE THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALE NORMAL	AU-DESSUS DE 5°C ABOVE 5°C	ANNÉE IN COURSE THIS YEAR	PRÉCÉDENTE PREVIOUS YEAR	NORMALE NORMAL	MM		CTI									
								0.2 PLUS	1.0 PLUS	2.0 PLUS	10.0 PLUS								
TOTAL DU MOIS TOTAL FOR MONTH	80.9	143.3	119.5	TOTAL DU MOIS TOTAL FOR MONTH	340.3	250.4	286.5												
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	91.7	155.7	153.8	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	1969.3	2005.0	1927.2	13	13	10	4								

Données non corrigées/Data not validated.

Les précipitations cm<1 mm seuil mesurable de 1,0 mm
Measurable threshold of precipitation is 1.0 mm

1. Journée climatologique/Climatological Day
2. Normale/Normal 1961-1990
3. TR=Trace
4. M=Manquant/Missing E=Estimé/Estimated
5. Pas de valeur/No entry/Pas d'événement/No occurrence
6. C=Calme/Calm

Canada

LEVÉS COMPARATIFS À:
IMPARATIVE RECORDS AT:

Montreal - Dorval (AUTO)

Septembre 1996

September 1996

RECORD POUR LE MOIS
RECORD FOR THE MONTH

	CE MOIS-CI THIS MONTH		ANNÉE PRÉCÉDENTE PREVIOUS YEAR		NORMALE NORMAL	MINIMUM ABSOLU LOWEST EVER						NO. D'ANNÉES NO OF YEARS		
						RELEVE VALUE	JOUR DAY	RELEVE VALUE	JOUR DAY	RELEVE VALUE	JOUR DAY	ANNEE YEAR		
TEMPÉRATURE MAXIMALE HIGHEST TEMPERATURE (MAXIMUM)	*CELSIUS	29.8	5	25.0	12			32.8	4	1953			53	
TEMPÉRATURE MINIMALE LOWEST TEMPERATURE (MINIMUM)	*CELSIUS	2.2	24	1.5	24					-2.2	30	1951	53	
TEMPÉRATURE MENSUELLE MOYENNE MONTHLY MEAN TEMPERATURE	*CELSIUS	16.3		12.8		14.5		18.6		1961	12.0	1978	53	
AUTEUR TOTALE MENSUELLE DE PLUIE TOTAL MONTHLY RAINFALL	Millimètres (mm) Millimetres (mm)	115.1		59.6		86.5		227.7		1975	11.4		1948	53
AUTEUR TOTALE MENSUELLE DE NEIGE TOTAL MONTHLY SNOWFALL	Centimètres (cm) Centimeters (cm)							6.1		1946	0.0		1993	53
RÉCIPITATION TOTALE MENSUELLE TOTAL MONTHLY PRECIPITATION	Millimètres (mm) Millimetres (mm)	115.1		59.6		86.5		227.7		1975	11.4		1948	53
OMBRE DE JOURS AVEC PRÉCIPITATION MESURABLE NO OF DAYS WITH MEASURABLE PRECIPITATION		13		7		11		19		1975	5		1963	53
AUTEUR DE PLUIE MAXIMALE EN UNE JOURNÉE REATEST RAINFALL IN ONE DAY	Millimètres (mm) Millimetres (mm)	34.5	8	28.0	7			81.9	14	1979				53
AUTEUR DE NEIGE MAXIMALE EN UNE JOURNÉE REATEST SNOWFALL IN ONE DAY	Centimètres (cm) Centimeters (cm)							6.1	30	1946				53
RÉCIPITATION MAXIMALE EN UNE JOURNÉE REATEST PRECIPITATION IN ONE DAY	Millimètres (mm) Millimetres (mm)	34.5	8	28.0	7			81.9	14	1979				53
AUTEUR DE PLUIE ENREGISTRÉE EN: MAXIMUM RAINFALL RECORDED IN:														
1 MINUTES	Millimètres (mm) Millimetres (mm)							8.6	7	1969				50
0 MINUTES	Millimètres (mm) Millimetres (mm)							13.7	7	1969				50
15 MINUTES	Millimètres (mm) Millimetres (mm)							21.3	7	1969				50
30 MINUTES	Millimètres (mm) Millimetres (mm)							37.1	7	1969				50
60 MINUTES	Millimètres (mm) Millimetres (mm)							48.5	7	1969				50
24 HEURES CONSÉCUTIVES CONSECUTIVE HOURS	Millimètres (mm) Millimetres (mm)													
VITESSE MOYENNE DU VENTS (KM/H) MEAN WIND SPEED (KMH)		13.6		10.7		12.0		17.2		1975	8.9		1982	41
VITESSE MAXIMALE (MOYENNE SUR 2 MIN.) (KM/H) MAXIMUM SPEED (2 MIN. MEAN) (KMH)	SE 33	8	WSW 39	7				NE 61	12	1963				41
POINTE DU VENT MAXIMALE (KM/H) MAXIMUM GUST SPEED (KMH)	W 63	29	WSW 57	22				WSW 97	6	1956				38
TOTAL DES HEURES INSOLATION TOTAL HOURS OF SUNSHINE		180.9		215.8		169.8		222.3		1983	102.0		1977	23
PRESSION MOYENNE À LA STATION (kPa) MEAN STATION PRESSURE (kPa)		101.00		101.50		101.26		101.58		1965	100.88		1966	41
PRESSION MAXIMAL À LA STATION (kPa) GREATEST STATION PRESSURE (kPa)		102.45	26	102.53	29			103.21	19	1969				41
PRESSION MINIMALE À LA STATION (kPa) LEAST STATION PRESSURE (kPa)		100.04	8	100.09	14						98.10	23	1989	41

DONNEES CLIMATOLOGIQUES CE MOIS-CI POUR LES 10 DERNIERES ANNÉES
CLIMATOLOGICAL DATA THIS MONTH FOR THE PAST 10 YEARS

ANNEE YEAR	TEMP. MAXIMALE MAXIMUM TEMP.	TEMP. MINIMALE MINIMUM TEMP.	TEMP. MOYENNE MEAN TEMP.	HAUTEUR DE PLUIE RAINFALL	HAUTEUR DE NEIGE SNOWFALL	PRECIP. TOTALE TOTAL PRECIP.	VITESSE MOYENNE DES VENTS MEAN WIND SPEED	VITESSE MAXIMALE DES VENTS MEAN WIND SPEED	HEURES INSOLATION SUNSHINE HOURS	DÉGRES-JOURS DE CHAUFFE HEATING DEGREE-DAYS	DÉGRES-JOURS DE CROISSANCE GROWING DEGREE-DAYS	DÉGRES-JOURS DE RÉFRIGÉRATION COOLING DEGREE-DAYS	A.S.H. S.A.S.
1987	26.4	1.0	15.0	108.2		108.2	12.0	WNW 30	167.6	101.8	298.5		10.3
1988	26.1	0.2	14.3	41.8		41.8	11.6	SW 35	196.4	121.6	277.7		9.3
1989	29.1	0.3	15.6	57.4		57.4	11.6	W 44	167.1	98.1	318.9		27.0
1990	26.5	3.0	14.1	79.2		79.2	11.8	W 46	118.9	120.5	273.5		4.0
1991	26.9	-1.8	13.5	69.8		69.8	9.8	WSW 33	201.4	146.3	255.7		11.2
1992	27.9	-0.3	14.6	108.2		108.2	12.3	SW 35	174.4	121.6	289.9		19.8
1993	28.6	-0.9	14.0	122.6		122.6	11.8	WSW 48	182.5	133.1	269.5		12.3
1994	24.5	4.0	14.9	67.2		67.2	11.5	WSW 33	169.7	95.9	295.5		1.4
1995	25.0	1.5	12.8	48.5		48.5	10.7	WSW 39	215.8	143.3	250.4		3.7
1996	29.8	2.2	16.3	115.1		115.1	13.6	SE 33	180.9	80.9	340.3		31.2

DATE	Montreal - Dorval (AUTO)																						Septembre 1996 September 1996		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22		
1	175	172	182	160	158	154	165	179	196	209	227	237	256	278	273	279	275	271	258	225	218	219	213	2	
2	197	181	169	157	164	165	167	184	203	235	249	260	277	280	284	281	275	271	262	247	234	222	206	1	
3	187	185	174	170	167	154	156	166	181	198	213	224	242	259	264	270	264	261	244	218	222	205	208	2	
4	185	182	182	177	167	157	159	176	196	223	233	251	258	273	282	283	283	277	263	251	221	219	215	2	
5	205	197	196	188	188	193	189	204	216	233	245	252	275	282	294	289	278	264	233	229	210	208	2		
6	191	205	194	175	175	174	175	198	225	238	256	270	273	277	283	275	270	241	219	228	232	224	2		
7	202	191	178	191	177	162	156	174	194	206	223	241	249	256	265	270	261	255	240	233	221	212	219	1	
8	168	171	169	167	152	149	150	151	157	184	184	181	193	192	191	183	178	178	174	173	175	177	179	1	
9	183	185	188	189	175	171	169	168	172	175	176	183	191	192	205	203	200	200	197	190	190	189	186	1	
10	187	184	180	175	174	172	172	182	183	183	200	202	205	196	205	215	209	206	203	190	169	166	164	1	
11	147	137	145	128	131	134	125	157	174	195	210	213	219	221	232	243	226	233	212	210	201	206	204	2	
12	193	186	185	182	177	178	168	174	176	179	181	185	190	190	209	208	209	204	208	205	194	187	187	1	
13	176	173	167	166	161	159	159	169	181	195	204	212	206	195	191	185	174	161	157	142	142	135	133	1	
14	131	131	126	125	122	125	125	125	129	135	146	157	158	163	160	161	156	150	146	143	138	131	128	1	
15	121	120	119	116	113	112	114	114	114	117	120	125	129	139	138	143	143	140	136	134	133	128	127	1	
16	120	119	119	119	119	116	116	118	121	121	125	128	128	135	138	144	142	146	149	145	143	143	141	142	1
17	140	135	133	133	129	125	124	128	138	157	170	182	191	194	202	194	196	185	174	162	146	142	135	1	
18	129	128	120	122	117	111	109	130	153	168	188	199	212	217	231	238	232	218	198	174	166	143	132	1	
19	101	96	93	90	97	100	93	116	148	164	180	188	200	208	222	226	221	210	188	171	144	139	137	1	
20	148	130	119	125	128	113	109	135	149	165	181	189	207	212	219	214	212	194	168	164	153	135	134	1	
21	139	145	134	128	132	130	131	136	152	167	187	205	224	231	233	231	229	208	195	173	167	166	144	1	
22	153	163	164	142	126	119	109	108	105	109	112	128	135	137	141	132	133	134	134	133	133	124	115	1	
23	92	84	81	75	69	66	62	72	92	106	117	122	128	135	124	139	125	123	104	100	78	72	67	6	
24	86	76	72	61	37	43	25	75	100	116	125	135	137	147	150	144	139	130	124	122	116	110	111	1	
25	99	91	94	90	90	94	90	91	99	104	108	111	115	123	131	128	124	102	99	96	100	95	9		
26	64	60	57	75	76	82	78	76	81	101	128	145	163	177	175	177	173	149	127	111	119	127	128	1	
27	120	115	114	108	105	106	104	110	123	132	132	135	143	147	158	151	152	153	153	147	145	139	142	1	
28	140	142	143	145	146	151	153	154	160	164	169	172	174	174	173	173	173	174	150	146	137	117	104	1	
29	117	121	122	123	132	133	128	133	135	149	148	163	171	179	178	171	168	167	162	155	158	161	111	1	
30	111	102	97	93	90	75	67	82	90	96	115	114	111	115	116	128	128	115	92	72	79	76	75	7	

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

Points de rosée horaires Hourly dew points												Montreal - Dorval (AUTO)										Septembre 1996 September 1996						
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	141	139	139	132	134	130	137	142	152	156	165	172	177	174	161	168	160	155	152	158	158	167	173	172				
2	171	161	159	152	155	156	155	169	165	184	182	183	176	182	180	166	171	150	167	185	193	187	174	169				
3	163	162	157	155	148	138	137	137	142	145	150	152	155	158	158	167	166	169	167	170	167	170	167					
4	167	163	167	162	154	144	142	148	151	174	183	185	189	188	189	187	180	172	174	176	187	188	192	196				
5	183	181	183	177	179	183	182	190	190	189	195	194	192	187	188	176	165	172	173	171	183	182	177	180				
6	177	183	176	170	167	148	143	144	133	132	129	119	116	113	121	113	114	120	137	141	138	138	140	137				
7	137	156	155	155	149	143	130	123	115	123	100	81	78	94	94	103	112	108	129	123	128	136	134	150				
8	157	144	138	141	138	135	140	138	141	146	146	153	155	155	157	165	169	173	172	173	175	177	179	181				
9	183	185	188	189	175	171	169	168	172	172	174	183	190	191	192	186	189	187	185	189	186	185	183	182				
10	184	182	180	175	174	172	172	179	180	180	182	174	173	183	178	175	167	155	149	148	140	152	151	150				
11	147	137	140	128	131	134	125	146	141	142	146	152	149	149	146	145	143	143	144	144	145	146	147	145				
12	148	149	150	150	154	164	155	158	173	173	176	181	183	182	167	155	153	157	150	141	140	140	138	136				
13	134	134	137	135	131	128	130	131	137	136	137	138	127	117	119	118	114	114	112	125	121	117	115	118				
14	119	120	123	123	121	123	123	125	125	125	129	135	134	134	128	131	132	130	126	129	127	127	122					
15	121	117	114	115	112	112	113	111	112	117	118	123	123	130	127	130	128	125	122	120	117	117	116					
16	114	113	111	112	114	114	118	119	121	125	127	127	133	133	137	138	138	138	136	136	138	137	134					
17	131	130	128	128	123	121	113	119	118	128	129	126	130	132	126	128	122	116	112	115	112	111	106	103				
18	102	98	96	96	94	94	97	98	109	107	110	115	120	115	107	111	93	93	84	86	71	77	73	76				
19	75	64	61	55	54	62	61	92	81	86	81	83	74	78	80	94	106	103	95	91	93	102	100					
20	101	100	97	100	107	104	101	116	122	123	128	129	131	112	121	104	94	100	103	105	107	113	111					
21	114	117	113	115	117	118	120	120	119	118	124	123	128	122	120	118	113	116	122	106	120	129	124	116				
22	112	110	70	46	61	55	45	27	39	32	30	36	37	37	42	12	-16	-26	-28	6	-1	7	24	33				
23	32	33	29	29	30	33	34	38	43	49	46	43	44	37	30	44	35	32	33	35	30	39	32	42				
24	50	50	45	46	34	38	21	75	86	81	75	57	45	63	52	60	58	62	59	64	68	76	81	71				
25	67	79	80	67	66	61	71	76	80	80	75	73	68	71	71	79	79	73	75	72	76	85	83					
26	60	58	57	75	76	82	78	76	81	91	87	90	64	53	46	61	54	67	47	53	57	68	74					
27	57	61	58	63	63	63	60	60	62	72	91	104	108	111	111	113	110	109	108	117	124	132	136	138				
28	138	138	138	138	138	142	145	150	155	159	165	167	171	170	170	173	172	174	150	146	137	113	95	107				
29	111	116	116	118	122	122	114	115	109	111	100	100	99	94	96	100	98	92	89	98	96	101	103	106				
30	103	92	88	84	74	67	61	72	70	72	73	62	61	52	41	45	44	29	34	33	39	41	55	65				

Unités / Units: 0.1 °C

M = Manquant / Missing

Humidités relatives horaires Hourly relative humidities												Montreal - Dorval (AUTO)										Septembre 1996 September 1996						
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	80	81	76	83	86	86	84	79	76	72	68	67	62	53	50	51	50	49	52	66	72	78	78					
2	85	88	94	97	94	94	93	91	79	73	66	63	54	55	53	50	53	48	56	68	78	81	82	85				
3	86	86	90	91	89	90	88	83	78	71	67	64	58	54	52	53	55	56	63	73	72	79	79	81				
4	89	89	91	91	92	92	90	84	75	74	74	67	66	60	57	56	54	53	58	63	81	83	87	88				
5	87	90	92	93	95	94	96	92	85	76	74	70	61	56	52	49	47	53	57	68	75	84	82	78				
6	92	87	89	97	95	85	82	71	56	51	45	39	38	36	38	35	37	39	52	61	57	55	59	59				
7	66	80	86	80	84	89	85	72	60	59	46	36	34	36	34	35	39	40	50	50	56	62	59	89				
8	93	84	82	85	91	91	94	92	90	79	84	79	79	81	89	94	97	99	100	100	100	100	100	100				
9	100	100	100	100	100	100	100	100	100	98	99	100	99	99	99	92	90	93	99	98	98	98	98					
10	98	99	100	100	100	100	100	98	98	98	89	84	82	92	85	78	77	73	71	77	83	91	92	97				
11	100	100	97	100	100	100	93	81	71	67	68	64	64	58	58	57	54	59	57	65	70	68	70	70				
12	75	79	80	82	86	92	90	98	96	97	98	96	85	77	71	73	73	71	71	74	74	73	73	73				
13	76	78	82	82	82	82	83	78	75	69	65	63	61	61	63	65	68	74	75	90	87	89	89	92				
14	92	93	98	99	99	99	99	100	97	94	90	87	86	83	81	82	86	88	91	92	97	99	99	99				
15	100	98	97	99	99	100	99	98	99	100	99	99	96	94	93	92	91	92	93	92	93	94	94	94				
16	96	96	95	95	97	99	100	99	100	100	99	99	99	97	96	97	95	93	96	96	96	98	97	93				
17	94	97	97	97	96	97	93	94	88	83	77	70	68	67	62	66	64	67	74	80	82	83	81					
18	84	82	85	84	86	91	93	87	74	69	63	60	54	50	47	40	41	45	48	56	53	64	67	77				
19	84	80	80	79	75	77	80	85	64	60	52	50	44	44	40	39	44	51	58	61	70	74	79	79				
20	73	82	86	85	87	94	95	88	84	76	71	68	62	53	54	49	50	52	64	67	73	83	8					



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Branch

SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Octobre 1996

Montreal - Dorval (AUTO)

October 1996

LAT 45° 28N LONG 73° 45W				ALTITUDE 36	METRES (NMM) METRES (ASL)	HEURE NORMALE UTILISÉE STANDARD TIME USED			DE L'EST Eastern									
DATE	TEMPÉRATURE TEMPERATURE			DÉGRÉS-JOURS DEGREE-DAYS		HUMIDITÉ REL. REL. HUMIDITY		PRÉCIPITATIONS PRECIPITATION			VENTS WINDS			INSOLATION EFFECTIVE BRIGHT SUNSHINE HOURS				
	MAXIMALE MAXIMUM	MINIMALE MINIMUM	MOYENNE MEAN	DÉ CHAUFFE HEATING	DÉ GROSSEUR GROWTH	DÉ RÉFRIGÉRATION COOLING	MAXIMALE MAXIMUM	MINIMALE MINIMUM	CRAGE THUNDERSTORM	PLUIE (HAUTEUR) RAINFALL	NEIGE (HAUTEUR) SNOWFALL	PRÉCIP. TOTAL TOTAL PRECIP	NEIGE AU SOL SNOW ON GROUND	VITESSE MOYENNE AVG SPEED	DIRECTION DOMINANTE PREVIA NO DIRECTION	VITESSE MAXIMALE MAX SUR 2 MIN & DIRECTION	MAX 2 MIN MEAN SPEED & DIRECTION	
1	22.3	8.1	15.2	2.8	10.2		91	58						10.4	SSE	SW*	17	5.2
2	19.6	6.9	13.3	4.7	8.3		95	72		3.5		3.5		19.2	SSE	WNW	35	0.3
3	7.1	-0.6	3.3	14.7			84	50						18.5	W	WNW	35	2.9
4	8.4	-2.2	3.1	14.9			91	44						10.9	NW	NW*	17	6.6
5	10.9	-4.0	3.5	14.5			94	44						6.7	SSE	SSE*	11	10.4
6	17.2	2.0	9.6	8.4	4.6		82	46						12.4	SSE	S*	17	9.3
7	19.7	6.0	12.9	5.1	7.9		92	55						7.8	SSE	SE*	13	6.6
8	13.6	9.5	11.6	6.4	6.6		96	72						16.3	NNE	NNE	24	1.2
9	14.4	8.3	11.4	6.6	6.4		97	79						12.3	WSW	WSW	22	2.7
10	11.0	1.9	6.5	11.5	1.5		99	68		14.0		14.0		14.4	N	N	26	
11	7.4	-3.3	2.1	15.9			91	46						14.5	WSW	WSW*	22	10.0
12	13.4	0.6	7.0	11.0	2.0		94	61		0.5		0.5		6.9	SE	WSW*	13	3.1
13	15.6	9.0	12.3	5.7	7.3		93	80		1.5		1.5		11.4	SE	SW	22	0.2
14	16.0	-2.8	6.6	11.4	1.6		83	45						27.7	WNW	W*	43	5.0
15	7.6	-3.6	2.0	16.0			67	35						15.8	WNW*	W*	24	9.6
16	14.8	4.5	9.7	8.3	4.7		89	58						10.5	SW	SW	19	6.8
17	8.9	3.4	6.2	11.8	1.2		80	39						11.2	NE	NE*	17	7.4
18	15.3	1.8	8.6	9.4	3.6		68	43						17.8	NE*	NE*	24	7.8
19	15.3	5.3	10.3	7.7	5.3		76	39						16.1	NE	NE	26	7.1
20	11.8	6.0	8.9	9.1	3.9		95	46		11.0		11.0		26.1	NE	NE*	33	
21	6.9	5.4	6.2	11.8	1.2		100	95		31.0		31.0		26.0	NE	NE*	33	
22	9.6	6.2	7.9	10.1	2.9		100	95		2.0		2.0		12.0	NE	NE	24	
23	14.0	6.9	10.5	7.5	5.5		100	64		2.0		2.0		11.7	NE	W	30	4.4
24	12.6	7.3	10.0	8.0	5.0		99	62		0.5		0.5		21.1	SW	SW*	30	4.4
25	11.8	2.5	7.2	10.8	2.2		90	61						22.5	WSW	WSW*	35	0.9
26	13.9	1.4	7.7	10.3	2.7		100	60						5.2	SSW	SSW	13	8.0
27	15.6	3.3	9.5	8.5	4.5		98	57		0.5		0.5		9.3	NNE	SW	22	6.0
28	15.4	5.1	10.3	7.7	5.3		92	45						25.0	W	WSW	31	1.0
29	10.3	0.4	5.4	12.6	0.4		78	40						12.7	W*	W	22	9.0
30	11.7	3.3	7.5	10.5	2.5		99	66		7.5	TR	7.5		23.5	E	SE	35	
31	10.0	0.6	5.3	12.7	0.3		85	45		0.5		0.5		29.4	WSW	WSW	43	3.1
	MOY. 13.0	MOY. 3.2	MOY. 8.1	TOTAL 306.4	TOTAL 107.6		MOY. 90	MOY. 57	TOTAL 74.5	TOTAL TR	TOTAL 74.5		MOY. 15.7	DOMINANTE NE	MAXIMALE W*	TOTAL 43	139.0	
NORMALE NORMAL	13.0	3.6	8.3	300.7	121.3	.7			72.8	2.6	75.4		14.0	W			141.1	

SOMMAIRE DE DEGRÉS-JOURS/DEGREE-DAY SUMMARY

AU-DESSOUS DE 18°C BELOW 18°C	ANNÉE THIS YEAR	ANNÉE PRÉCÉDENTE PREVIOUS YEAR	NORMALE NORMAL	AU-DESSUS DE 5°C ABOVE 5°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCÉDENTE PREVIOUS YEAR	NORMALE NORMAL	mm								cm								
								0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	10.0 OU PLUS	0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS
TOTAL DU MOIS TOTAL FOR MONTH	306.4	210.8	300.7	TOTAL DU MOIS TOTAL FOR MONTH	107.6	201.2	121.3																	
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	398.1	366.5	454.5	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	2076.9	2206.2	2048.5	12	8	7	3													

Données non contrôlées/Data not validated

Les précipitations ont un seuil mesurable de 1,0 mm

Measurable threshold of precipitation is 1.0 mm

1. Journée climatologique/Climatological Day

2. Normale/Normal 1961-1990

3. TR=Trace

4 M=Manquant/Missing E=Estimé/Estimated

5. Pas de valeur/No entry=Pas d'événement/No occurrence

6. C=Calmé/Calm

Canada

ELEVES COMPARATIFS À:
COMPARATIVE RECORDS AT:

Montreal - Dorval (AUTO)

Octobre 1996

October 1996

	CE MOIS-CI THIS MONTH	ANNÉE PRÉCÉDENTE PREVIOUS YEAR		NORMALE NORMAL	RECORD POUR LE MOIS RECORD FOR THE MONTH					
		RELÈVE VALUE	JOUR DAY		RELÈVE VALUE	JOUR DAY	MAXIMUM ABSOLU HIGHEST EVER		MINIMUM ABSOLU LOWEST EVER	
							JOUR DAY	ANNÉE YEAR	RELÈVE VALUE	JOUR DAY
MÉTÉOROLOGIE MAXIMALE WEATHER TEMPERATURE (MAXIMUM)	°CELSIUS	22.3	1	25.5	13		28.3	2	1968	
MÉTÉOROLOGIE MINIMALE WEATHER TEMPERATURE (MINIMUM)	°CELSIUS	-4.0	5	-2.0	30				-7.2	20
MÉTÉOROLOGIE MENSUELLE MOYENNE WEATHER MONTHLY TEMPERATURE	°CELSIUS	8.1		11.2		8.3	12.8		5.1	
HUTEUR TOTALE MENSUELLE DE PLUIE TOTAL MONTHLY RAINFALL	Millimètres (mm) Millimètres (mm)	74.5		182.7		72.8	139.2		14.0	
HUTEUR TOTALE MENSUELLE DE NEIGE TOTAL MONTHLY SNOWFALL	Centimètres (cm) Centimètres (cm)	TR		TR			22.4		0.0	
PÉCIPITATION TOTALE MENSUELLE TOTAL MONTHLY PRECIPITATION	Millimètres (mm) Millimètres (mm)	74.5		182.7		75.4	143.0		14.0	
OMBRE DE JOURS AVEC PRÉCIPITATION MESURABLE 2 OF DAYS WITH MEASURABLE PRECIPITATION		12		14		13	20		3	
HUTEUR DE PLUIE MAXIMALE EN UNE JOURNÉE REATEST RAINFALL IN ONE DAY	Millimètres (mm) Millimètres (mm)	31.0	21	80.5	6		63.8	20	1989	
HUTEUR DE NEIGE MAXIMALE EN UNE JOURNÉE REATEST SNOWFALL IN ONE DAY	Centimètres (cm) Centimètres (cm)	TR		TR			21.2	22	1988	
PÉCIPITATION MAXIMALE EN UNE JOURNÉE REATEST PRECIPITATION IN ONE DAY	Millimètres (mm) Millimètres (mm)	31.0	21	80.5	6		80.5	6	1995	
HUTEUR DE PLUIE ENREGISTRÉE EN MAXIMUM RAINFALL, RECORDED IN:										
MINUTES	Millimètres (mm) Millimètres (mm)						4.7	5	1979	
1 MINUTES	Millimètres (mm) Millimètres (mm)						7.6	24	1959	
5 MINUTES	Millimètres (mm) Millimètres (mm)						9.1	24	1959	
10 MINUTES	Millimètres (mm) Millimètres (mm)						17.0	24	1959	
30 MINUTES	Millimètres (mm) Millimètres (mm)						27.7	24	1959	
4 HEURES CONSECUTIVES CONSECUTIVE HOURS	Millimètres (mm) Millimètres (mm)									57
VITESSE MOYENNE DU VENTS (KM/H) MEAN WIND SPEED (KM/H)		15.7		17.0		14.0	20.6		10.6	
VITESSE MAXIMALE (MOYENNE SUR 2 MIN) (KM/H) MAXIMUM SPEED (2 MIN. MEAN) (KM/H)		W 43	14	WNW 39	29		SW 60	19	1967	
POINTE DU VENT MAXIMALE (KM/H) MAXIMUM GUST SPEED (KM/H)		WSW 61	31	WSW 69	16		SSW 117	6	1979	
TOTAL DES HEURES INSOLATION TOTAL HOURS OF SUNSHINE		139.0		137.5		141.1	225.4		67.0	
PRESSION MOYENNE À LA STATION (hPa) MEAN STATION PRESSURE (hPa)		101.23		M		101.28	101.93		100.76	
PRESSION MAXIMAL À LA STATION (hPa) GREATEST STATION PRESSURE (hPa)		103.46	5	102.38	19		103.79	25	1956	
PRESSION MINIMALE À LA STATION (hPa) LEAST STATION PRESSURE (hPa)		99.07	30	99.21	29				97.82	19
DONNEES CLIMATOLOGIQUES CE MOIS-CI POUR LES 10 DERNIÈRES ANNÉES CLIMATOLOGICAL DATA THIS MONTH FOR THE PAST 10 YEARS										

ANNÉE YEAR	TEMP. MÉTÉOROLOGIQUE MAXIMUM TEMP.	TEMP. MÉTÉOROLOGIQUE MINIMUM TEMP.	TEMP. MÉTÉOROLOGIQUE MÉAN TEMP.	HAUTEUR DE PLUIE RAINFALL	HAUTEUR DE NEIGE SNOWFALL	PRECIP. TOTALE TOTAL PRECIP.	VITESSE MOYENNE DES VENTS MEAN WIND SPEED	VITESSE MAXIMALE DES VENTS MEAN WIND SPEED	HEURES INSOLATION SUNSHINE HOURS	DÉGRÉS-JOURS DE CHAUFFE HEATING DEGREE-DAYS	DÉGRÉS-JOURS DE CROISSANCE GROWING DEGREE-DAYS	DÉGRÉS-JOURS DE RÉFRIGÉRATION COOLING DEGREE-DAYS	A.S.N. S.A.S.
1987	20.1	-4.1	7.6	56.5	0.4	56.9	11.9	SW 31	141.1	321.2	94.8		0.4
1988	23.0	-6.9	6.2	65.4	22.4	87.8	15.6	WSW 39	80.1	367.0	66.7	1.2	22.4
1989	24.4	-1.4	9.4	118.8	5.8	125.0	14.3	ENE 37	153.0	265.1	145.6		5.8
1990	25.4	-5.6	8.5	118.8		118.8	15.5	W 52	128.2	294.5	127.7		
1991	24.5	-2.8	9.5	70.7		70.7	12.2	SSE 24	136.4	265.6	146.5	1.0	
1992	20.6	-5.9	6.5	78.6	0.4	79.0	12.3	SE 22	119.8	356.4	75.5		0.4
1993	20.8	-5.3	6.5	122.4	0.8	123.2	15.9	W 35	122.2	358.0	64.6		0.8
1994	24.2	-2.8	9.5	19.8		19.8	10.3	WSW 37	161.1	264.7	139.8		
1995	25.5	-2.0	11.2	182.7	TR	182.7	17.0	WSW 46	137.5	210.8	201.2	0.5	TR
1996	22.3	-4.0	8.1	74.5	TR	74.5	15.7	W* 43	139.0	306.4	107.6		TR

Température horaire Hourly temperature		Montreal - Dorval (AUTO)																			Octobre 1996 October 1996				
DATE		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		86	85	91	86	95	96	98	103	114	122	135	146	174	200	210	220	221	207	181	165	156	155	146	152
2		140	139	137	135	138	142	147	150	163	173	177	177	177	187	191	189	184	172	176	180	166	172	174	124
3		101	69	57	51	44	37	33	37	40	45	50	53	58	59	56	67	55	51	44	13	19	-2	0	1
4		2	5	-4	-11	-2	-13	-16	8	35	49	63	69	76	79	72	73	72	54	24	25	18	22	2	-17
5		-1	-22	-13	-6	-1	-17	-39	-14	35	54	72	86	90	101	102	107	107	90	67	76	78	45	57	34
6		40	39	42	41	41	28	35	58	76	108	124	139	153	163	167	167	161	141	124	117	110	101	86	91
7		80	72	75	76	70	76	80	92	106	123	139	161	180	188	189	197	188	178	154	173	152	147	158	140
8		125	126	129	131	130	127	123	114	114	111	111	115	129	129	129	128	124	115	112	108	105	101	103	101
9		98	96	96	95	97	95	90	92	106	121	133	133	130	124	125	118	120	115	109	107	107	107	108	108
10		104	104	104	104	105	101	104	109	106	95	88	84	82	69	68	67	65	62	63	58	52	48	41	32
11		24	20	12	-1	-13	-23	-32	-9	18	31	39	55	58	60	67	67	66	55	36	43	49	49	49	44
12		39	13	19	14	21	25	33	35	56	74	96	103	107	127	123	119	105	87	89	90	87	86	92	91
13		92	93	96	90	96	96	97	98	100	102	107	106	113	114	118	129	133	118	127	115	135	141	139	134
14		139	155	159	153	144	107	92	85	90	87	94	96	96	96	99	90	79	60	48	40	28	26	14	15
15		-2	-26	-16	-15	-20	-20	-20	-15	-1	14	24	36	51	62	69	73	59	56	54	53	48	52	53	48
16		50	57	48	50	53	50	47	55	65	73	83	104	124	130	142	146	145	129	121	124	112	110	96	72
17		60	56	51	51	45	39	37	40	44	47	58	65	70	79	83	86	84	72	71	61	58	54	52	52
18		58	56	51	39	30	27	23	20	28	49	63	85	109	128	143	145	145	144	143	128	115	114	110	102
19		100	100	97	90	82	63	57	55	70	91	113	121	135	146	149	152	147	120	125	114	107	100	96	90
20		86	83	74	71	70	68	67	68	72	77	89	97	102	96	112	117	116	109	90	78	88	72	68	66
21		63	61	58	58	57	57	55	55	56	57	56	55	55	58	60	63	65	65	66	67	66	68	67	67
22		66	63	63	62	62	63	65	66	68	72	77	86	86	89	90	93	88	86	84	82	81	71	81	75
23		74	75	74	73	72	73	75	79	83	96	100	109	126	129	138	138	137	135	128	124	128	122	122	127
24		114	103	95	84	86	77	84	95	98	105	112	114	117	116	107	105	102	104	103	107	105	104	107	113
25		112	113	110	109	107	103	96	97	100	103	107	107	106	108	112	106	99	102	96	77	55	73	58	
26		37	34	36	39	42	25	15	37	64	83	102	114	122	135	138	137	131	114	92	68	88	75	72	61
27		58	55	52	50	44	43	51	51	56	71	95	110	127	139	147	153	151	141	124	123	110	104	103	102
28		94	153	151	144	151	149	139	127	126	128	125	124	137	107	116	102	103	99	92	79	74	60	57	63
29		58	51	33	35	37	30	15	13	49	62	73	71	85	96	100	97	88	65	42	40	56	29	57	46
30		37	41	38	34	34	39	37	44	41	41	44	52	66	70	73	67	70	75	84	105	101	115	114	107
31		104	99	93	72	72	66	62	55	53	58	63	67	77	86	74	60	53	28	24	20	14	14	22	15

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

Vents horaires (km/h) Hourly winds (km/h)		Montreal - Dorval (AUTO)																						Octobre 1996 October 1996					
		Heure normale locale: Est Local standard time: Eastern																						Rafale max Peak Gust	heure time	jour day			
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	SSE	SSE	C	S	SE	ESE	SSE	SSE	SE	SSE	C	SSE	SE	SSE	SSW	S	SW	SSW	SE	SSE	SSE	SE	SSE						
7	7	4	0	6	6	7	9	11	0	11	4	13	11	9	15	17	9	15	11	11	13	15	17						
2	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	S	WNW	W	W	57	23	2		
13	15	15	17	15	15	17	19	20	19	17	17	20	15	15	15	15	19	13	17	15	26	20	35						
3	W	WNW	WNW	W	W	W	W	W	WNW	NW	NW	NW	NW	NW	W	WNW	W	50	2	3									
33	30	35	20	22	20	24	20	28	31	20	24	20	22	19	28	15	15	15	11	11	7	7	7	11					
4	WNW	WNW	NW	NW	NW	NW	NW	NW	NNW	NNW	NNW	NNW	NNW	NNW	W	WNW	W	WNW	W	WNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW
11	15	9	11	13	13	11	9	17	15	17	15	17	11	15	15	13	15	9	9	7	4	0	6	C	W				
5	NW	NNE	NNW	NNW	NNE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE							
7	4	4	6	6	6	4	4	4	6	6	7	7	11	7	9	4	11	9	6	6	4	9	7						
6	SSE	SSE	SE	ESE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE							
9	9	7	6	4	13	11	13	11	15	15	15	17	11	9	15	17	17	17	17	15	15	13	13	6					
7	SE	SE	SE	ESE	SE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE							
9	9	9	9	4	13	11	11	11	11	11	11	11	11	11	11	13	4	6	0	0	7	4	7	9	13	0			
8	WNW	WNW	SW	C	N	N	NNE	NNE	NE	NE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6	7	4	0	4	6	19	13	22	24	17	19	20	20	22	22	19	20	20	17	17	19	19	19	19	19	19	19	19	19
9	NNE	N	NNE	NNE	NE	NNE	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
15	17	13	11	7	9	11	11	9	11	7	9	11	9	7	9	17	15	13	15	17	22	13	13	13	15	15	15	15	15
10	WSW	W	SW	W	C	NNW	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
7	7	6	6	0	4	0	6	7	20	19	19	24	24	26	19	17	11	17	17	19	15	24	20	41	13	10			
11	N	NNW	NW	NW	NW	NNW	NW	NW	NNW	NNW	W	WNW	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	
15	11	7	7	9	9	9	15	17	9	15	13	17	9	15	13	20	11	19	22	19	13	13	20	22	22	22	22	22	22
12	WSW	WSW	WSW	NW	N	NNW	ESE	C	SW	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W
20	11	11	6	4	4	7	0	0	6	13	13	7	9	9	4	11	6	0	7	7	7	9	6	31	17	12			
13	SE	SE	ESE	NNW	ESE	SE	SE	SSE	SE	SE	SSE	SE	SE	SSE	SE	SE	SE	SE	SE	SSE	SSE	S	SW	SSW	S	SW	SSW	S	SW
9	11	7	6	6	6	9	6	11	9	13	17	17	17	11	13	9	9	7	7	13	20	11	15	35	1	13			
14	S	SW	SW	WSW	W	NW	NNW	W	W	W	W	W	W	W	W	WNW	WNW	WNW	WNW	WNW	WNW								
13	22	26	28	26	28	37	22	30	43	30	30	30	35	43	31	35	35	35	35	35	28	26	26	26	26	26	26	26	26
15	NW	WNW	WNW	NW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW									
17	13	13	19	13	19	19	15	17	15	24	20	19	20	24	20	20	20	20	17	13	9	9	13	4	37	11	15		
16	SW	SSW	WNW	W	C	C	WSW	SW	WSW	SSW	SW	SSW	SW	SSW	SW	SSW	SW	SSW	SW	SSW	SW	SSW	SW	SSW	W	NE			
9	7	4	4	0	0	6	7	9	9	11	13	11	13	15	19	17	13	15	13	15	15	15	9	11					
17	NE	NE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE										
11	13	7	11	11	13	13	15	13	15	13	17	15	7	13	17	6	6	6	6	11	11	9	7						
18	NE	NE	NE	NE	NE	NE	NE	NE	NE	NNE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
11	15	24	19	15	17	15	20	20	17	20	22	13	11	13	24	24	20	15	24	15	19	17	15	39	17	18			
19	E	E	E	E	NE	NE	NE	NE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
15	13	13	11	9	17	17	15	15	15	15	11	15	19	20	13	19	17	13	19	15	17	17	24	31	1	19			
20	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
19	26	26	24	26	26	28	24	26	20	26	20	26	24	30	30	28	24	24	26	30	33	33	33	33	33	33	33	33	33
21	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
26	24	31	31	30	31	33	28	26	30	33	31	33	26	24	28	19	15	15	19	22	22	24	48	3	21				
22	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
26	20	22	24	22	22	20	20	19	19	13	4	6	6	6	6	7	7	9	13	11	6	9	7	39	2	22			
23	N	NN	NE	SSE	NE	C	ESE	E	E	NE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
4	6	6	4	6	0	7	9	9	13	17	15	15	20	15	13	11	15	15	15	15	13	7	9	9	54	1	23		
24	NE	W	W	WSW	S	SSE	SSW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW						
7	30	22	7	9	13	13	19	24	30	30	28	22	24	26	17	7	11	15	28	28	26	24	30	46	12	24			
25	SW	SW	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW										
26	28	28	33	28	22	22	20	24	31	35	35	35	30	33	35	35	30	33	35	22	22	22	13	11	6	13	52	9	25
26	WSW	W	W	W	C	C	W	C	WSW	WSW	C	S	SSW	S	SSW	SSW	S	SSW	SSW	SSW	SSW	SSW	SSW						
7	6	4	4	0	0	4	0	4	6	0	6	6	9	7	9	13	9	7	7	7	6	0	0	7					
27	N	NNE	NNE	NNE	NNE	N	NE	NNE	NNE	NE	NNE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6	11	9	11	9	9	13	9	15	13	11	9	11	13	9</td															

Points de rosée horaires Hourly dew points												Montreal - Dorval (AUTO)												Octobre 1996 October 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	67	68	70	71	75	68	75	68	76	79	89	91	101	116	127	138	140	143	139	134	133	133	131	131							
2	125	125	125	123	124	122	120	121	124	131	131	130	137	156	144	137	132	140	142	139	137	137	140	105							
3	93	42	25	23	19	7	3	-1	-16	-16	-19	-21	-33	-29	-28	-29	-32	-38	-34	-32	-28	-31	-32	-31							
4	-27	-21	-25	-29	-20	-26	-30	-5	0	-19	-26	-31	-24	-35	-33	-34	-38	-37	-26	-19	-22	-27	-25	-35							
5	-23	-40	-26	-17	-20	-29	-48	-23	10	12	8	-8	4	7	-3	-10	-1	-1	-5	-12	-11	11	6								
6	9	11	7	1	-3	-6	8	26	25	31	39	44	48	48	51	58	71	62	60	57	55	55	52	53							
7	46	43	52	51	53	56	61	68	72	76	82	91	92	95	99	111	115	108	111	110	105	109	120	119							
8	113	113	122	124	124	114	112	96	83	76	72	75	80	80	81	80	79	79	79	81	86	88	87								
9	85	80	81	82	85	85	84	85	90	97	98	97	100	95	99	99	105	101	101	101	100	98	97								
10	98	98	100	100	101	98	102	102	104	92	85	80	72	54	54	50	51	54	49	42	30	22	7	-3							
11	-28	-22	-21	-23	-33	-39	-44	-27	-51	-42	-51	-46	-38	-46	-35	-41	-36	-33	-32	-23	-14	-15	7	7							
12	7	-9	-1	-3	3	8	15	23	24	34	48	40	44	56	49	51	64	73	75	80	78	76	77	78							
13	79	78	76	77	74	78	80	81	80	84	86	88	93	101	99	100	97	106	99	108	119	126	123								
14	122	121	123	123	115	64	41	29	38	19	27	16	12	0	-9	-23	-34	-48	-57	-50	-61	-76	-70	-71							
15	-76	-77	-79	-86	-83	-79	-87	-78	-77	-75	-74	-71	-70	-75	-72	-79	-62	-67	-55	-48	-49	-41	-32								
16	-21	1	-7	-8	-22	-11	3	-1	1	9	18	29	43	53	63	67	72	77	80	86	79	80	78	40							
17	20	16	15	15	13	4	-3	-1	-4	-4	-16	-36	-39	-38	-46	-45	-47	-47	-44	-45	-48	-41	-45	-48							
18	-46	-40	-37	-38	-35	-35	-35	-32	-30	-27	-25	-15	-9	5	18	69	78	79	65	50	46	42	40	38							
19	36	37	31	29	13	24	17	14	15	18	15	22	17	16	14	15	23	37	22	32	29	30	28								
20	28	29	30	30	25	23	21	21	21	24	23	24	16	30	15	10	4	23	45	53	44	47	50	53							
21	51	53	50	52	49	51	48	49	50	51	51	50	52	56	59	61	61	60	62	64	65	68	65	66							
22	63	62	61	61	63	64	64	67	71	76	84	84	86	85	86	86	84	81	79	79	71	81	75								
23	74	75	74	73	72	73	75	76	75	81	79	78	76	66	75	72	72	71	79	80	83	91	96	100							
24	105	92	78	76	78	76	83	76	75	64	65	54	46	52	51	59	60	69	68	69	79	87	92	90							
25	90	85	75	75	69	58	49	53	55	53	50	47	51	45	39	40	41	39	39	36	31	22	34	34							
26	21	19	25	30	26	15	13	37	60	63	43	59	62	65	64	61	65	64	57	49	61	61	57	51							
27	45	44	43	39	32	27	22	20	24	27	32	47	54	56	66	74	75	77	80	83	76	78	76	88							
28	91	137	134	131	133	126	85	77	74	72	67	64	52	29	8	7	-10	18	-6	1	-4	-7	-27								
29	-25	-28	-25	-17	-17	-19	-20	-21	-9	-13	-15	-17	-27	-26	-28	-32	-33	-37	-30	-28	-23	-30	-16	-12							
30	-15	-18	-20	-16	-9	-15	-14	-13	3	21	21	35	48	54	52	58	69	74	80	100	92	90	87	82							
31	79	65	50	48	43	36	27	19	13	-2	7	-28	-24	-25	-32	-31	-56	-32	-48	-52	-63	-61	-70	-61							

Unités / Units: 0.1 °C

M = Manquant / Missing

Humidités relatives horaires Hourly relative humidities												Montreal - Dorval (AUTO)												Octobre 1996 October 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	88	89	87	90	87	83	86	79	77	75	74	70	62	58	59	60	60	67	76	82	86	87	91	87							
2	91	91	92	92	91	88	84	83	78	76	74	74	77	82	74	72	72	81	80	77	83	80	80	88							
3	95	83	80	82	84	81	81	76	67	64	61	59	52	53	55	50	53	52	57	72	71	80	80	78							
4	81	83	86	88	88	91	90	91	78	61	53	49	49	44	47	46	45	52	69	73	75	70	82	87							
5	85	87	91	92	87	91	93	94	84	74	64	52	55	52	48	44	47	53	60	54	53	67	72	82							
6	80	82	78	75	73	78	82	80	70	59	56	53	49	46	46	49	55	59	65	67	69	73	79	77							
7	79	82	85	84	89	87	88	85	79	68	63	63	56	55	56	58	63	64	66	74	78	78	87								
8	92	92	96	96	96	92	93	89	81	79	77	76	72	73	73	74	79	80	82	85	90	90	91								
9	92	90	90	92	92	93	96	95	90	85	79	79	82	84	88	89	90	97	96	96	95	94	93								
10	96	96	97	97	97	98	99	95	99	98	97	93	90	89	91	95	91	89	86	83	78	78	78								
11	68	74	79	85	86	89	91	88	70	59	52	48	50	46	48	46	48	53	61	62	64	63	74	77							
12	80	85	87	88	88	89	88	92	80	76	72	65	65	62	61	63	76	91	91	94	93	90	92								
13	92	90	87	92	86	89	89	89	87	89	87	89	87	92	88	83	80	87	87	90	84	87	92								
14	89	80	79	82	83	75	70	68	70	62	63	57	56	51	47	45	46	46	48	52	53	53	53								
15	57	68	62	58	62	64	60	62	56	51	48	44	41	38	35	35	36	42	41	46	50	48	51								
16	60	67	67	66	58	65	73	67	64	64	64	60	58	59	59	62	71	76	78	80	82	89	80								
17	75	75	78	78	80	78	75	75	71	69	59	48	46	43	40	39	39	42	44	46	46	50	49								
18	47	50	53	57	62	64	65	68	66	58	53	49	48	44	43	43	60	64	65	59	63	62	64								
19	64	65	63	66	62	76	75	75	68	60	51	51	45	41	40	39	43	57	57	58	61	65									
20	67	69	74	75	73	73	72	72	70	69	63	60	55	63	51	48	46	55	73	84	84	88									
21	92	95	95	96	95	96	95	96	96	97	98	99	99	99	97	97	97	97	98	99	99	100	99								
22	98	99	99	99	99	100	99	99	99	99	99	99	99	99	99	99	99	99	98	98	99	100	100								
23	100</																														



Environnement
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Canada
Atmospheric
Environment
Branch

SOMMAIRE MÉTÉOROLOGIQUE MENSUEL
MONTHLY METEOROLOGICAL SUMMARY

Novembre 1996

Montreal - Dorval (AUTO)

November 1996

LAT 45° 28N LONG 73° 45W ALTITUDE 36 MÉTRES (NMM) ÉLÉVATION 36 MÉTRES (ASL)				HEURE NORMALE UTILISÉE STANDARD TIME USED				DE L'EST Eastern											
DATE	TEMPÉRATURE TEMPERATURE			DEGRÉS-JOURS DEGREES-DAYS			HUMIDITÉ REL. REL. HUMIDITY	CRATE THUNDERSTORM	PRÉCIPITATIONS PRECIPITATION			VENTS WINDS							
	MÉTÉORALUE MAXIMUM MAXIMUM	JAHNALE MINIMUM MINIMUM	MOYENNE MEAN	DE CHAUFFE HEATING	DE CROISSANCE GROWING	DE RÉFRIGÉRATION COOLING			PLUIE (HAUTEUR) RAINFALL	NEIGE (HAUTEUR) SNOWFALL	FREQU. TOTAL TOTAL PRECIP	NEIGE AU SOL SNOW ON GROUND	VITESSE MOYENNE AVERAGE SPEED	DIRECTION DOMINANTE PREVAIL DIRECTION	VITESSE MOYENNE MAX SUR 2 MIN 4 DIRECTION	MAX 2 MIN MEAN SPEED & DIRECTION	ISOLATION EFFECTIVE BRIGHT SUNSHINE		
1	5.8	0.7	3.3	14.7			66	47					TR	TR	22.9	WSW*	WSW	39	0.9
2	3.7	-4.6	-0.5	18.5			92	44					TR	TR	17.3	W	SW*	26	5.5
3	2.9	-4.2	-0.7	18.7			83	51					TR	TR	17.2	W	WSW*	30	3.8
4	9.1	-1.8	3.7	14.3			82	54					TR	TR	18.4	WSW	SW	31	0.3
5	7.5	1.4	4.5	13.5			83	55					TR	TR	14.9	NE	NE	24	
6	11.0	0.8	5.9	12.1	0.9		87	63	TR	TR	TR				11.1	NNE	ESE*	17	2.2
7	16.9	7.4	12.2	5.8	7.2		96	78	0.5	0.5					25.7	SE	SE	33	
8	19.8	10.1	15.0	3.0	10.0		100	78	93.5	93.5					9.5	S	SSE	19	
9	11.9	1.8	6.9	11.1	1.9		100	82	40.5	40.5					18.5	SW	WSW*	37	
10	6.8	-0.2	3.3	14.7			95	68	0.5	0.5					11.7	NNE	SSW*	24	0.9
11	3.9	-4.5	-0.3	18.3			92	70	TR	TR					16.8	W	WSW	30	12.6
12	2.2	-6.7	-2.3	20.3			90	62	0.2	0.4					14.4	W	WSW	28	6.1
13	-1.7	-8.3	-5.0	23.0			93	66	TR	TR					10.1	W	WNW	20	4.9
14	-1.4	-10.5	-6.0	24.0			91	56	TR	TR					7.7	WNW	NNE	22	6.1
15	-3.6	-11.2	-7.4	25.4			78	46	TR	TR					6.8	N	N*	13	8.7
16	1.4	-9.9	-4.3	22.3			88	41			TR				7.5	E	NNE*	13	7.8
17	6.6	-5.3	0.7	17.3			84	35							11.5	NNE	NNE	20	8.3
18	2.6	-2.4	0.1	17.9			100	62	7.0	7.0					5.7	N	NNE*	17	
19	1.5	0.2	0.9	17.1			100	98	3.6	8.0	11.6				8.0	WSW	WSW*	15	
20	1.9	-1.7	0.1	17.9			100	81	TR	0.6	0.6				18.6	WSW	W	28	
21	-0.4	-2.8	-1.6	19.6			91	77			TR				19.7	WSW	WSW	30	
22	2.3	-3.9	-0.3	18.8			89	71			TR				16.8	W	W*	28	0.6
23	2.9	-12.1	-4.6	22.6			97	63	2.0	5.0	7.0				21.7	SW	SW	37	
24	-6.9	-14.2	-10.6	28.6			85	63							2.0	5.7	W	WSW*	13
25	-3.3	-8.6	-6.0	24.0			93	74							5.0	N	WSW	.9	1.9
26	-1.6	-4.8	-3.2	21.2			92	61			0.6	0.6			3.0	N*	N	24	
27	-3.3	-9.7	-6.5	24.5			71	51							3.0	14.1	N	22	7.3
28	-3.5	-10.9	-7.2	25.2			95	68	TR	TR					3.0	10.7	WSW	SW*	15
29	-0.4	-7.1	-3.8	21.8			96	82	TR	TR					3.0	7.2	WSW	SW	15
30	3.2	-0.6	1.3	16.7			92	74	TR	TR					2.0	15.5	SE	SSE*	22
	MOY. 3.3	MOY. -4.1	MOY. -0.4	TOTAL 552.9	TOTAL 20.0	TOTAL MOY.	MOY. 90	MOY. 64	TOTAL 147.6	TOTAL 16.8	TOTAL 163.8		MOY. 13.6	DOMINANTE WSW	MAXIMALE WSW	TOTAL 39		TOTAL 87.7	
NORMALE NORMAL													MEAN PREVAILING						
	5.2	-2.0	1.6	492.3	22.4									16.0	W				84.2

SOMMAIRE DE DEGRÉS-JOURS/DEGREE-DAY SUMMARY

AU-DESSUS DE 18°C BELOW 18°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALE NORMAL	AU-DESSUS DE 1°C ABOVE 1°C	ANNÉE EN COURS THIS YEAR	ANNÉE PRÉCEDENTE PREVIOUS YEAR	NORMALE NORMAL	MM		CM		
								0.2 OU PLUS	1.0 OU PLUS	2.0 OU PLUS	10.0 OU PLUS	50.0 OU PLUS
TOTAL DU MOIS TOTAL FOR MONTH	552.9	569.5	492.3	TOTAL DU MOIS TOTAL FOR MONTH	20.0	10.4	22.4	OR MORE	OR MORE	OR MORE	OR MORE	OR MORE
ACCUMULÉS DEPUIS LE 1ER JUILLET ACCUMULATED SINCE JULY 1	951.0	936.0	946.8	ACCUMULÉS DEPUIS LE 1ER AVRIL ACCUMULATED SINCE APRIL 1	2096.9	2216.6	2070.9	11	6	5	3	1

Données non contrôlées/Data not validated
Les précipitations ont un seuil mesurable de 1,0 mm
Measurable threshold of precipitation is 1.0 mm

1. Journée climatologique/Climatological Day
2. Normale/Normal 1961-1990
3. TR=Trace
4. M=Manquant/Missing E=Estimé/Estimated
5. Pas de valeur/No entry/Pas d'événement/No occurrence
6. C=Calmé/Calm



Government
of Canada

RELEVÉS COMPARATIFS À:
COMPARATIVE RECORDS AT:

Montreal - Dorval (AUTO)

Novembre 1996
November 1996

	CE MOIS-CI THIS MONTH	ANNEE PRÉCEDENTE PREVIOUS YEAR		NORMALE NORMAL	RECORD POUR LE MOIS RECORD FOR THE MONTH							
		MAXIMUM ABSOLU HIGHEST EVER			MINIMUM ABSOLU LOWEST EVER			NO. D'ANNÉES NO. OF YEARS				
		RELEVE VALUE	JOUR DAY	ANNEE YEAR	RELEVE VALUE	JOUR DAY	ANNEE YEAR					
TEMPÉRATURE MAXIMALE HIGHEST TEMPERATURE (MAXIMUM)	°CELSIUS °C	19.8	8	17.1	11	21.7	6	1948	55			
TEMPÉRATURE MINIMALE LOWEST TEMPERATURE (MINIMUM)	°CELSIUS °C	-14.2	24	-17.4	30			-19.4	27	1949	55	
TEMPÉRATURE MENSUELLE MOYENNE MEAN MONTHLY TEMPERATURE	°CELSIUS °C	-0.4		-1.0		1.6	5.8	1948	-0.6	1989	54	
HAUTEUR TOTALE MENSUELLE DE PLUIE TOTAL MONTHLY RAINFALL	Millimètres (mm) Millimeters (mm)	147.6		89.1		70.4	142.6	1989	19.1	1956	54	
HAUTEUR TOTALE MENSUELLE DE NEIGE TOTAL MONTHLY SNOWFALL	centimètres (cm) centimeters (cm)	16.8		48.1		24.1	69.1	1983	0.0	1957	54	
PRÉCIPITATION TOTALE MENSUELLE TOTAL MONTHLY PRECIPITATION	Millimètres (mm) Millimeters (mm)	163.8		136.7		93.4	175.8	1989	31.5	1991	55	
NOMBRE DE JOURS AVEC PRÉCIPITATION MESURABLE NO. OF DAYS WITH MEASURABLE PRECIPITATION		12		17		15	22	1989	9	1962	54	
HAUTEUR DE PLUIE MAXIMALE EN UNE JOURNÉE GREATEST RAINFALL IN ONE DAY	Millimètres (mm) Millimeters (mm)	93.5	8	34.0	2		55.6	1	1994		54	
HAUTEUR DE NEIGE MAXIMALE EN UNE JOURNÉE GREATEST SNOWFALL IN ONE DAY	centimètres (cm) centimeters (cm)	8.0	19	17.0	27		30.5	30	1944		54	
PRÉCIPITATION MAXIMALE EN UNE JOURNÉE GREATEST PRECIPITATION IN ONE DAY	Millimètres (mm) Millimeters (mm)	93.5	8	34.0	2		55.6	1	1994		54	
HAUTEUR DE PLUIE ENREGISTRÉE EN MAXIMUM RAINFALL RECORDED IN:												
5 MINUTES	Millimètres (mm) Millimeters (mm)						3.8	22	1953		49	
10 MINUTES	Millimètres (mm) Millimeters (mm)						4.9	6	1988		49	
15 MINUTES	Millimètres (mm) Millimeters (mm)						7.6	22	1983		49	
30 MINUTES	Millimètres (mm) Millimeters (mm)						11.3	16	1989		49	
60 MINUTES	Millimètres (mm) Millimeters (mm)						13.8	16	1989		49	
24 HEURES CONSECUTIVES CONSECUTIVE HOURS	Millimètres (mm) Millimeters (mm)											
VITESSE MOYENNE DES VENTS (KM/H) MEAN WIND SPEED (KM/H)		13.6		16.6		16.0	21.4	1958	11.8	1974	43	
VITESSE MAXIMALE (MOYENNE SUR 2 MIN.) (KM/H) MAXIMUM SPEED (2 MIN. MEAN) (KM/H)	WSW 39	1	SSE 44	11		WSW 76	10	1975			43	
POINTE DU VENT MAXIMALE (KM/H) MAXIMUM GUST SPEED (KM/H)	SW 56	9	S 65	11		S 113	16	1989			38	
TOTAL DES HEURES INSOLATION TOTAL HOURS OF SUNSHINE		87.7		64.3		84.2	144.3	1978	62.4	1972	24	
PRESSION MOYENNE À LA STATION (hPa) MEAN STATION PRESSURE (hPa)		101.60		101.07		101.18	101.71	1985	100.59	1976	42	
PRESSION MAXIMALE À LA STATION (hPa) GREATEST STATION PRESSURE (hPa)		104.23	15	102.80	1		103.94	30	1993		42	
PRESSION MINIMALE À LA STATION (hPa) LEAST STATION PRESSURE (hPa)		99.10	9	98.51	12				96.53	30	1963	42

DONNÉES CLIMATOLOGIQUES CE MOIS-CI POUR LES 10 DERNIÈRES ANNÉES
CLIMATOLOGICAL DATA THIS MONTH FOR THE PAST 10 YEARS

ANNÉE YEAR	TEMP. TEMPERATURE MAXIMALE MAXIMUM TEMP.	TEMP. TEMPERATURE MINIMALE MINIMUM TEMP.	TEMP. TEMPERATURE MOYENNE MEAN TEMP.	HAUTEUR DE PLUIE RAINFALL	HAUTEUR DE NEIGE SNOWFALL	PRECIP. TOTALE TOTAL PRECIP.	VITESSE MOYENNE DES VENTS MEAN WIND SPEED	VITESSE MAXIMALE DES VENTS MEAN WIND SPEED	HEURES INSOLATION SUNSHINE HOURS	DÉGRES-JOURS DE CHAUFFE HEATING DEGREE-DAYS	DÉGRES-JOURS DE CROISSANCE GROWING DEGREE-DAYS	DÉGRES-JOURS DE RÉFRIGÉRATION COOLING DEGREE-DAYS	A.S.H. S.A.S.
1987	18.0	-14.4	0.9	86.3	29.4	115.9	14.2	WSW 41	86.2	514.1	18.4		29.8
1988	19.0	-7.9	3.2	92.6	24.8	117.8	15.2	WSW 48	74.7	445.5	28.9		47.2
1989	19.7	-15.9	-0.6	142.6	37.2	175.8	17.2	SW 56	73.8	556.7	19.3		43.0
1990	19.2	-7.4	2.5	70.9	16.4	86.9	14.7	WSW 48	84.0	464.8	35.4		16.4
1991	18.2	-9.0	2.5	22.0	7.3	31.5	14.9	SW 52	79.4	466.0	25.2		7.3
1992	13.8	-10.9	1.5	89.9	13.8	100.2	14.4	SW 69	78.7	495.1	12.7		14.2
1993	14.0	-14.1	1.3	79.6	18.6	98.2	15.4	SW 52	84.2	502.3	9.5		19.4
1994	18.0	-10.7	3.7	105.8	13.6	118.8	16.8	WSW 59	122.6	429.5	42.0		13.6
1995	17.1	-17.4	-1.0	89.1	48.1	136.7	16.6	SSE 44	64.3	569.5	10.4		48.1
1996	19.8	-14.2	-0.4	147.6	16.8	163.8	13.6	WSW 39	87.7	552.9	20.0		16.8

Température horaire Hourly temperature		Montreal - Dorval (AUTO)																			Novembre 1996 November 1996				
DATE		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		15	23	18	18	13	14	17	24	35	37	43	51	55	57	55	55	57	42	35	37	39	38	24	13
2		16	13	17	19	16	13	7	-1	3	14	18	26	31	29	21	24	17	1	-13	-21	-30	-27	-26	-3
3		-32	-18	-27	-32	-41	-36	-40	-34	-29	-25	-13	1	12	8	13	16	1	2	-3	5	-17	-36	-39	-1
4		-5	-5	-1	3	-12	-16	-6	23	28	M	42	53	61	70	69	72	83	84	87	90	88	82	81	80
5		76	71	67	49	49	34	26	18	15	16	20	22	24	29	33	34	34	30	30	30	31	29	25	26
6		29	26	23	24	10	15	17	20	27	37	48	62	81	91	106	107	107	100	91	84	82	86	76	75
7		79	74	87	92	95	98	102	96	98	104	107	105	112	119	125	130	135	141	144	148	152	159	163	16
8		164	166	168	179	182	174	148	142	147	146	147	146	147	149	143	141	128	125	126	121	117	109	106	10
9		106	118	117	117	116	114	114	115	91	72	67	63	57	51	53	51	52	51	47	44	33	23	44	37
10		27	37	26	27	22	27	11	14	18	33	43	44	46	52	57	62	48	38	45	36	48	43	37	27
11		25	20	19	20	19	19	15	11	11	21	22	26	31	25	33	32	31	-5	-6	-7	-16	-28	-27	-2
12		-37	-44	-39	-46	-37	-38	-51	-51	-28	-13	-6	0	11	13	8	0	-18	-20	-26	-28	-26	-31	-44	-4
13		-53	-62	-65	-78	-66	-73	-75	-83	-64	-49	-31	-34	-38	-25	-28	-39	-47	-68	-70	-70	-72	-72	-77	-6
14		-71	-70	-71	-88	-88	-103	-85	-96	-74	-50	-40	-37	-24	-28	-19	-24	-37	-65	-61	-66	-64	-57	-64	-7
15		-84	-88	-93	-100	-102	-106	-111	-112	-100	-89	-77	-72	-59	-52	-47	-43	-48	-64	-66	-76	-66	-67	-70	-7
16		-73	-75	-70	-71	-67	-88	-77	-77	-66	-45	-30	-14	-4	4	12	9	8	-1	-5	-9	-21	-28	-26	-3
17		-34	-38	-39	-49	-48	-48	-49	-47	-32	-11	11	26	44	58	61	64	56	47	35	27	3	5	7	13
18		-11	-7	-8	-7	-2	-8	-19	-16	0	6	10	17	19	19	24	25	22	22	17	16	15	14	14	14
19		14	13	11	11	14	10	6	5	9	9	9	6	11	11	7	4	2	2	8	9	11	11	11	9
20		7	8	9	8	6	4	2	1	0	2	4	7	14	17	M	13	8	3	3	6	-5	-7	-9	-1
21		-14	-16	-17	-18	-21	-24	-26	-28	-28	-24	-20	-15	-16	-15	-9	-9	-8	-8	-7	-6	-6	-6	-6	-1
22		-10	-11	-9	-4	-16	-24	-26	-13	-6	-1	6	11	17	16	12	12	14	14	12	11	2	1	-11	-2
23		-33	-24	-36	-36	-39	-35	-17	-21	-6	2	8	17	27	23	19	17	14	11	-6	-20	-37	-57	-76	-9
24		-111	-116	-121	-125	-135	-127	-135	-137	-131	-118	-107	-84	-81	-81	-75	-82	-83	-84	-81	-79	-77	-74	-71	-7
25		-71	-71	-70	-69	-66	-61	-61	-66	-64	-59	-55	-52	-46	-43	-34	-37	-53	-75	-79	-81	-68	-62	-58	-5
26		-53	-48	-47	-45	-46	-42	-44	-43	-39	-40	-41	-39	-35	-34	-29	-23	-20	-24	-17	-28	-32	-39	-40	-4
27		-44	-46	-51	-57	-70	-70	-73	-78	-76	-64	-57	-49	-40	-39	-35	-48	-37	-42	-43	-53	-49	-48	-44	-4
28		-47	-47	-81	-83	-96	-96	-104	-105	-86	-65	-57	-51	-42	-37	-37	-38	-43	-47	-40	-49	-55	-43	-41	-4
29		-62	-61	-54	-64	-49	-48	-43	-56	-52	-39	-30	-28	-26	-22	-19	-18	-16	-16	-17	-13	-13	-14	-17	-7
30		-9	-5	-2	1	3	2	3	3	6	7	13	21	23	22	23	24	23	23	23	26	28	27	26	25

Unités / Units: 0.1 °C M = Manquant /Missing

Lire / Read -123 = -12.3 °C -1 = -0.1 °C 0 = 0.0 °C 12 = +1.2 °C 123 = +12.3 °C

Heure normale locale: Est

Local standard time: Eastern

		Montreal - Dorval (AUTO)																				Novembre 1996 November 1996												
		Heure normale locale: Est Local standard time: Eastern																				Rafale max Peak Gust												
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		heure time	jour day							
1	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	SW	SW	WSW	WSW	WSW	SW	SW	50	9	1					
2	26	30	24	31	24	22	22	22	22	39	24	24	30	24	28	31	26	20	13	17	20	17	19	19	19	WSW	37	2	2					
3	SW	SW	SW	SSW	WSW	SW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW	W	SW	W	SW	W	WNW	WNW	W	WNW	WNW	W	WNW	WSW	41	12	3				
4	17	15	19	19	19	26	26	19	17	24	17	19	20	26	17	22	22	17	11	9	9	6	9	11	11	11	WSW	46	20	4				
5	W	W	W	W	W	W	W	WSW	W	WNW	WNW	W	WNW	WNW	W	WNW	WNW	W	WNW	WNW	NE	31	9	5										
6	13	19	17	17	15	19	19	17	28	30	26	20	30	24	24	30	17	11	4	13	9	9	7	9	7	9	7	SE	44	13	7			
7	11	6	9	11	6	6	11	20	19	M	26	19	22	20	17	15	20	20	26	31	30	30	26	26	26	26	SSE	35	5	8				
8	13	11	9	11	6	6	11	20	19	M	26	19	22	20	17	15	20	20	26	31	30	30	26	26	26	26	C	56	15	9				
9	11	9	7	13	15	15	19	17	15	11	9	11	9	15	4	7	9	11	6	0	6	9	6	4	11	0	SW	35	5	8				
10	13	11	9	19	15	15	19	4	26	24	28	26	37	35	37	24	28	17	19	13	0	13	6	0	13	SSE	37	23	10					
11	7	0	4	7	7	9	6	9	11	17	13	19	11	7	6	6	6	6	0	4	22	22	24	24	24	24	SSW	37	23	10				
12	19	22	30	24	24	28	26	24	24	20	24	15	20	17	11	13	15	6	9	11	11	11	11	11	11	11	WSW	39	4	11				
13	11	11	9	11	13	13	11	11	11	13	9	9	15	17	28	24	26	13	15	9	17	15	15	15	15	15	WNW	31	14	12				
14	W	W	W	W	W	W	WNW	WNW	WNW	W	WSW	W	WSW	W	WNW	W	WNW	W	WNW	W	WNW	WNW	WNW	WNW	WNW	WNW	NNE	NNE	NNE	NNE				
15	13	13	11	11	11	9	11	6	4	11	13	15	15	19	19	19	20	9	7	9	7	7	6	6	4	4	SE	ESE	SE	SE				
16	ESE	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	NNE	NNE	NNE	NNE				
17	7	6	7	6	7	4	7	6	7	7	7	9	6	6	6	0	11	9	7	4	7	9	7	9	7	9	13	NNE	NNE	NNE	NNE			
18	9	13	9	9	11	11	11	11	11	7	11	11	9	9	13	11	11	11	13	11	11	11	11	15	17	20	C	W	C	W	C			
19	9	15	17	15	17	7	7	7	11	7	7	7	6	4	6	4	4	0	0	4	0	4	6	4	0	0	WSW	WSW	WSW	WSW				
20	0	0	6	6	6	7	6	6	6	6	7	6	7	6	6	6	6	4	4	0	7	11	15	15	15	15	13	W	39	19	20			
21	W	W	W	WSW	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW																		
22	20	20	24	19	19	22	20	20	19	19	30	24	26	26	26	22	20	17	19	20	17	17	13	11	37	11	21	W	W	W				
23	9	13	13	15	11	11	13	15	11	13	17	17	20	26	28	19	24	17	20	19	15	28	17	11	35	15	22	SW	50	13	23			
24	WSW	WSW	WSW	WSW	WSW	WSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW																			
25	11	7	7	7	7	7	6	6	0	4	0	0	13	13	7	9	7	9	7	11	6	4	0	6	4	0	4	4	SE	E	N	N		
26	SSE	SE	E	N	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE	NNE																			
27	NNW	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	37	19	26
28	22	19	22	20	17	15	13	9	11	15	17	17	17	17	17	17	17	13	13	11	13	13	11	11	11	11	11	13	15	39	2	27		
29	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW				
30	11	11	9	9	7	9	9	9	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	35	20	30	

Avis/Note

C= Calme /Calm

M= Manquant /Missing

Points de rosée horaires Hourly dew points												Montreal - Dorval (AUTO)								Novembre 1996 November 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	-54	-45	-45	-44	-46	-43	-43	-34	-31	-45	-43	-43	-39	-46	-39	-35	-30	-43	-38	-45	-29	-25	-46	-44			
2	-42	-47	-42	-39	-40	-33	-20	-13	-10	-3	-15	-37	-62	-77	-82	-82	-92	-87	-87	-82	-80	-76	-70	-82			
3	-72	-65	-63	-62	-69	-72	-65	-62	-61	-58	-57	-58	-62	-67	-75	-76	-74	-65	-61	-63	-67	-67	-52				
4	-44	-41	-40	-42	-49	-50	-33	-8	-12	M	-1	3	10	3	-5	-3	12	18	7	3	5	15	20	21			
5	24	27	29	23	5	-32	-41	-52	-57	-55	-52	-60	-54	-47	-47	-44	-41	-28	-29	-30	-36	-22	-11	-11			
6	-10	-9	-8	-7	-11	-4	-6	-5	-1	4	11	23	34	41	43	39	47	49	45	44	45	44	39	41			
7	47	48	56	58	59	63	67	79	83	85	89	99	106	108	110	113	114	118	122	125	129	135	138	136			
8	138	140	142	141	143	151	140	140	147	146	147	146	147	149	143	141	128	125	126	121	117	109	106	104			
9	106	118	117	117	116	114	114	115	91	72	67	62	53	46	42	31	25	26	25	23	14	8	22	15			
10	12	9	6	5	8	11	0	4	10	16	14	9	26	32	37	30	25	13	17	10	-5	-1	-7	11			
11	16	13	8	7	3	-3	-6	-11	-10	-3	-14	-10	-11	-18	-16	-18	-18	-18	-23	-32	-41	-51	-53	-47			
12	-53	-59	-53	-60	-57	-59	-70	-70	-53	-50	-48	-48	-54	-48	-50	-60	-43	-40	-48	-49	-50	-69	-85	-83			
13	-84	-86	-81	-94	-83	-90	-95	-92	-76	-79	-84	-89	-77	-78	-79	-81	-98	-100	-106	-96	-102	-102	-101	-97			
14	-102	-101	-98	-108	-106	-115	-100	-110	-87	-77	-72	-85	-90	-86	-90	-99	-102	-101	-97	-100	-108	-111	-116	-126			
15	-136	-139	-142	-142	-146	-149	-153	-152	-146	-146	-142	-141	-138	-139	-137	-141	-132	-123	-127	-124	-113	-114	-109				
16	-107	-107	-107	-104	-97	-108	-93	-98	-87	-85	-81	-88	-97	-100	-97	-107	-105	-115	-105	-97	-100	-91	-86	-74			
17	-72	-70	-67	-71	-72	-72	-74	-74	-67	-65	-66	-63	-61	-65	-62	-65	-65	-66	-65	-88	-81	-67					
18	-66	-63	-63	-65	-66	-63	-67	-60	-58	-52	-50	-43	-29	-16	-9	-10	1	0	8	12	12	14	14				
19	14	13	11	10	14	10	6	5	9	9	6	11	11	7	4	2	2	8	9	10	10	8	9				
20	7	7	7	8	5	1	0	-3	-4	-2	0	3	9	10	M	-1	-9	-15	-23	-18	-20	-24	-26				
21	-25	-27	-34	-37	-38	-36	-41	-44	-47	-45	-47	-45	-46	-44	-37	-30	-28	-34	-41	-41	-38	-37	-36	-33			
22	-30	-27	-25	-26	-37	-43	-43	-35	-34	-32	-31	-31	-27	-29	-27	-28	-29	-26	-28	-35	-46	-52	-59				
23	-57	-49	-57	-61	-64	-59	-61	-47	-55	-50	-40	-32	-22	-3	8	10	9	7	-10	-24	-70	-103	-120	-136			
24	-145	-146	-151	-153	-154	-155	-162	-162	-152	-159	-154	-136	-122	-123	-130	-140	-126	-118	-118	-116	-114	-111	-112	-111			
25	-108	-103	-109	-103	-96	-93	-99	-82	-77	-72	-70	-71	-76	-72	-68	-69	-77	-90	-94	-96	-79	-76	-68	-64			
26	-66	-62	-58	-56	-61	-59	-59	-64	-64	-59	-56	-57	-51	-53	-55	-55	-56	-63	-63	-91	-94	-94	-93	-97			
27	-102	-110	-111	-109	-115	-115	-120	-124	-124	-120	-121	-123	-113	-116	-122	-119	-111	-106	-114	-104	-99	-96	-99	-94			
28	-95	-91	-114	-111	-122	-122	-123	-127	-112	-112	-85	-80	-85	-77	-78	-88	-82	-77	-72	-64	-69	-72	-64	-59			
29	-59	-68	-66	-75	-55	-57	-53	-66	-60	-51	-56	-55	-50	-48	-41	-38	-34	-34	-35	-28	-31	-32	-37	-28			
30	-27	-26	-18	-15	-12	-15	-8	-12	-19	-17	-16	-19	-15	-17	-16	-18	-12	-12	-14	-11	-8	-6	-1				

Unités / Units: 0.1 °C

M = Manquant / Missing

Humidités relatives horaires Hourly relative humidities												Montreal - Dorval (AUTO)								Novembre 1996 November 1996							
DATE	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	60	61	63	63	65	66	64	65	62	55	53	51	47	51	52	53	54	59	55	61	63	60	66				
2	65	64	65	65	66	71	82	92	91	88	79	63	50	45	46	45	44	51	57	63	68	69	72	71			
3	74	70	76	80	81	76	83	81	79	76	71	65	59	59	55	51	56	57	63	61	71	79	81	77			
4	75	77	75	72	76	78	82	80	75	M	74	70	70	62	59	59	61	63	57	54	56	63	65	66			
5	70	74	77	83	73	62	61	60	59	59	55	56	57	56	57	58	66	65	65	61	69	77	77				
6	75	78	80	80	86	87	85	83	82	79	77	76	72	71	65	63	66	71	73	76	77	75	77				
7	80	84	81	79	78	79	79	89	90	88	89	96	96	93	91	89	87	86	86	86	85	86	84				
8	85	85	85	78	78	86	95	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
9	100	100	100	100	100	100	100	100	100	100	100	99	97	97	93	87	83	84	86	87	90	86	85				
10	90	82	87	85	90	89	92	93	94	89	81	78	87	87	87	80	85	84	82	83	88	73	89				
11	94	95	92	91	89	85	86	85	86	84	77	77	74	73	70	70	70	70	91	88	83	84	82	84			
12	89	89	90	90	86	85	86	86	83	83	76	73	70	62	64	65	64	83	85	83	75	73	76				
13	79	83	88	88	88	88	86	93	91	79	67	66	74	67	68	72	67	78	75	82	79	83	78				
14	78	78	81	85	87	91	89	89	90	81	78	69	60	64	58	56	61	75	77	71	66	66	66				
15	66	66	67	71	70	71	71	72	69	63	59	58	53	50	49	46	52	63	62	68	63	70	75				
16	77	78	75	77	79	85	88	85	85	74	68	57	49	45	44	41	42	42	47	51	55	62	63				
17	75	78	81	84	83	83	81	77	67	65	56	52	46	41	35	39	38	45	48	50	60	52	55				
18	66	66	66	65	62	66	70	72	65	65	64	64	70	78	79	86	85	94	97	98	99	100	100				
19	100	100	100	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	98	100				
20	100	99	99	100	99	98	99	97	97	97	97	96	95	M	90	88	88	81	91	91	90	90					
21	92	92	88	87	88	91	89	89	87	85	82	80	81	86	86	82	79	77	79	79	80	82					
22	86	89	89	85	86	87	88	85	81	80	76	73	72	72	75	77	74	73	76	75	71	74					
23	83	83	85	83	83	83	72	82	69	63	70	70	70	83	92	95	96	97	97	78	70	71					
24	76	78	78	79																							