



## RETURN BIDS TO:

## RETOURNER LES SOUMISSIONS À:

Réception des soumissions - TPSGC / Bid Receiving  
- PWGSC

1550, Avenue d'Estimauville

1550, D'Estimauville Avenue

Québec

Québec

G1J 0C7

FAX pour soumissions: (418) 648-2209

## REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

### Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

### Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

### Comments - Commentaires

### Vendor/Firm Name and Address

### Raison sociale et adresse du

### fournisseur/de l'entrepreneur

### Issuing Office - Bureau de distribution

TPSGC/PWGSC

601-1550, Avenue d'Estimauville

Québec

Québec

G1J 0C7

<b>Title - Sujet</b> Abris Préfabriqués	
<b>Solicitation No. - N° de l'invitation</b> EF928-190384/B	<b>Date</b> 2019-07-17
<b>Client Reference No. - N° de référence du client</b>	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$QCN-039-17723	
<b>File No. - N° de dossier</b> QCN-8-41214 (039)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2019-08-30</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Heure Avancée de l'Est HAE
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Boisclair, Daniel	<b>Buyer Id - Id de l'acheteur</b> qcn039
<b>Telephone No. - N° de téléphone</b> (418) 649-2831 ( )	<b>FAX No. - N° de FAX</b> (418) 648-2209
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> MINISTERE DES TRAVAUX PUBLICS ET SERVICES GOUVERNEMENTAUX CANADA PL.BONAVENTURE,PORTAIL S-E,BUR.7300 800 RUE DE LA GAUCHETIERE O., 7300. MONTREAL Québec H5A1L6 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

<b>Delivery Required - Livraison exigée</b> Voir Doc.	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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Client Ref. No. - N° de réf. du client  
EF928-190384

Amd. No. - N° de la modif.  
File No. - N° du dossier  
QCN-8-41214

Buyer ID - Id de l'acheteur  
QCN039  
CCC No./N° CCC - FMS No./N° VME

This Request for Proposal cancels and supersedes previous Request for Proposal number EF928-190384/A dated 2019-05-24 with a closing of 2019-07-08 at 2.00 PM EDT.

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## **PART 1 - GENERAL INFORMATION**

### **1.1 Statement of Requirement**

The requirement is detailed under Article 6.2 of **the resulting contract clauses**.

### **1.2 Debriefings**

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

### **1.3 Trade Agreements**

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Canada-European Union Comprehensive Economic and Trade Agreement (CETA), and the Canadian Free Trade Agreement (CFTA).

### **1.4 epost Connect service**

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.



## PART 2 - BIDDER INSTRUCTIONS

### 2.1 Standard Instructions, Clauses and Conditions

The 2003 standard instructions is amended as follows:

- Section 08, entitled Transmission by facsimile or by epost Connect, is amended as follows:  
subsection 2. is deleted entirely and replaced with the following:

#### 2. epost Connect

- Unless specified otherwise in the bid solicitation, bids may be submitted by using the [epost Connect service](#) provided by Canada Post Corporation.
  - PWGSC regional offices: The only acceptable email address to use with epost Connect for responses to bid solicitations issued by PWGSC regional offices is identified in the bid solicitation.
- To submit a bid using epost Connect service, the Bidder must either:
  - send directly its bid only to the specified PWGSC Bid Receiving Unit, using its own licensing agreement for epost Connect provided by Canada Post Corporation; or
  - send as early as possible, and in any case, at least six business days prior to the solicitation closing date and time, (in order to ensure a response), an email that includes the bid solicitation number to the specified PWGSC Bid Receiving Unit requesting to open an epost Connect conversation. Requests to open an epost Connect conversation received after that time may not be answered.
- If the Bidder sends an email requesting epost Connect service to the specified Bid Receiving Unit in the bid solicitation, an officer of the Bid Receiving Unit will then initiate an epost Connect conversation. The epost Connect conversation will create an email notification from Canada Post Corporation prompting the Bidder to access and action the message within the conversation. The Bidder will then be able to transmit its bid afterward at any time prior to the solicitation closing date and time.
- If the Bidder is using its own licensing agreement to send its bid, the Bidder must keep the epost Connect conversation open until at least 30 business days after the solicitation closing date and time.
- The bid solicitation number should be identified in the epost Connect message field of all electronic transfers.
- It should be noted that the use of epost Connect service requires a Canadian mailing address. Should a bidder not have a Canadian mailing address, they may use the Bid Receiving Unit address specified in the solicitation in order to register for the epost Connect service.
- For bids transmitted by epost Connect service, Canada will not be responsible for any failure attributable to the transmission or receipt of the bid including, but not limited to, the following:
  - receipt of a garbled, corrupted or incomplete bid;
  - availability or condition of the epost Connect service;
  - incompatibility between the sending and receiving equipment;
  - delay in transmission or receipt of the bid;
  - failure of the Bidder to properly identify the bid;
  - illegibility of the bid;
  - security of bid data; or,
  - inability to create an electronic conversation through the epost Connect service.

- h. The Bid Receiving Unit will send an acknowledgement of the receipt of bid document(s) via the epost Connect conversation, regardless of whether the conversation was initiated by the supplier using its own license or the Bid Receiving Unit. This acknowledgement will confirm only the receipt of bid document(s) and will not confirm if the attachments may be opened nor if the content is readable.
- i. Bidders must ensure that they are using the correct email address for the Bid Receiving Unit when initiating a conversation in epost Connect or communicating with the Bid Receiving Unit and should not rely on the accuracy of copying and pasting the email address into the epost Connect system.
- j. A bid transmitted by epost Connect service constitutes the formal bid of the Bidder and must be submitted in accordance with section 05.

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The [2003](#) (2018-05-22) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days  
Insert: 90 days

#### **2.1.1 SACC Manual Clauses**

B1000T (2014-06-26) Condition of Material - Bid

#### **2.2 Submission of Bids**

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated in the bid solicitation.

**2.2.1** By using the epost Connect service provided by Canada Post Corporation ([https://www.canadapost.ca/web/en/products/details.page?article=epost\\_connect\\_send\\_a](https://www.canadapost.ca/web/en/products/details.page?article=epost_connect_send_a))  
The email address of PWGSC Quebec region Bid Receiving Unit is:  
[TPSGC.RQReceptionSoumissions-QRSupplyTendersReception.PWGSC@tpsgc-pwgsc.gc.ca](mailto:TPSGC.RQReceptionSoumissions-QRSupplyTendersReception.PWGSC@tpsgc-pwgsc.gc.ca)

**Note:** Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instructions [2003](#), or to send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

**2.2.2 Tenders can also be transmitted by fax to 418-648-2209**

By mail or in person at:

**Public Works and Government Services Canada (PWGSC)  
1550, Avenue of Estimaerville  
Quebec City, (Quebec)  
G1J 0C7**

**2.3 Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

**2.4 Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **3.1 Bid Preparation Instructions**

If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

The bid must be gathered per section and separated as follows:

Section I: Technical Bid  
Section II: Financial Bid  
Section III: Certifications

If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

Section I: Technical Bid (Two (2) hard copies)  
Section II: Financial Bid (One (1) hard copy)  
Section III: Certifications (One (1) hard copy)

If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of hard copy of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### **Section I: Technical Bid**

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

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## **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment.

### **3.1.1 Exchange Rate Fluctuation**

C3011T (2013-11-06), Exchange Rate Fluctuation

## **Section III: Certifications**

Bidders must submit the certifications and additional information required under Part 5.

## PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

### 4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### 4.1.1 Technical Evaluation

Each bid will be reviewed to determine whether it meets the mandatory requirements of the bid solicitation. Any element of the bid solicitation identified with the words "must" or "mandatory" is a mandatory requirement.

Bids that do not comply with each and every mandatory requirement will be declared non-responsive and be disqualified.

##### 4.1.1.1 Mandatory Technical Criteria

The items listed below should be provided with the bid but may be provided later. If any of these elements are not provided as requested, the Contracting Authority will inform the Bidder of the time frame within which to provide the information. Failure to provide the items listed below within the time frame provided will render the bid non-responsive.

Mandatory technical criteria		Compliant
1.	<p>The main activity of the contractor must be to design and fabrication shelters, sheds and other accessories made of composite materials. The contractor may associate with a firm of architects and engineers in case he does not have the two skills sought. On the other hand, these subcontractors will have for main activity that which is complementary to his.</p> <p>The Contractor must submit in its proposal a minimum of five (5) projects for the <b>construction</b> of shelters, sheds, other accessories and composite components for at least two (2) different clients. The minimum cumulative duration of these projects must totalize four (4) years over the last five (5) years from the bid closing date.</p> <p>The bidder should include in his bid, the following information for each project;</p> <ul style="list-style-type: none"><li>(i) The date of sale</li><li>(ii) The value of the project</li><li>(iii) The number of shelters and / or shed</li><li>(iv) The dimensions of each shelter and / or shed</li><li>(v) The user's contact information :<ul style="list-style-type: none"><li>a. Name of the organization</li><li>b. Address</li><li>c. Contact person</li><li>d. Phone</li><li>e. Email</li></ul></li></ul> <p><b><i>You can use the template in section 4.1.1.2 or any other document to meet this criterion.</i></b></p> <p style="text-align: center;"><b><i>See more on the next page</i></b></p>	

Mandatory technical criteria	Compliant
<p><b>2.</b> The Contractor must submit in its bid <b>on behalf of each subcontractor</b> related to the <b>design</b> of shelters, sheds, foundations and other accessories made of composite materials, a minimum of five (5) design projects in this area of application for at least two (2) clients within the last five (5) years from the bid closing date. The requirement remains in the case where the design is carried out by professionals employed by the contractor.</p> <p>The bidder should include in his bid, the following information for each project;</p> <ul style="list-style-type: none"> <li>(i) The date of the contract</li> <li>(ii) The value of the project</li> <li>(iii) The number of shelters and / or shed</li> <li>(iv) The dimensions of each shelter and / or shed</li> <li>(v) A full description of the services included in the project</li> <li>(vi) The user's contact information : <ul style="list-style-type: none"> <li>a. Name of the organization</li> <li>b. Address</li> <li>c. Contact person</li> <li>d. Phone</li> <li>e. Email</li> </ul> </li> </ul> <p><b><i>You can use the template in section 4.1.1.3 or any other document to meet this criterion.</i></b></p>	
<p><b><i>The provided information may be verified with the user to check and certify the accuracy of the information.</i></b></p> <p><b><i>If the information certification does not match the above requirements, the bid will be declared non responsive.</i></b></p>	

#### 4.1.1.2 Proposed model to meet the mandatory technical criterion number 1

The bidder should include in his bid, the following information for each project;		Project 1	Project 2	Add projects as needed to achieve a minimum of five (5) projects for at least two (2) different clients.
(i)	The date of sale			
(ii)	The value of the project			
(iii)	The number of shelters and / or shed			
(iv)	The dimensions of each shelter and / or shed			
(v)	The user's contact information :	Project 1	Project 2	
a.	Name of the organization			
b.	Address			
c.	Contact person			
d.	Phone			
e.	Email			

#### 4.1.1.3 Proposed model to meet the mandatory technical criterion number 2

The bidder should include in his bid, the following information for each project;		Project 1	Project 2	Add projects as needed to achieve a minimum of five (5) projects for at least two (2) clients.
(i)	The date of the contract			
(ii)	The value of the project			
(iii)	The number of shelters and / or shed			
(iv)	The dimensions of each shelter and / or shed			
(v)	A full description of the services included in the project			
(vi)	The user's contact information :	Project 1	Project 2	
a.	Name of the organization			
b.	Address			
c.	Contact person			
d.	Phone			
e.	Email			



#### **4.1.2 Financial Evaluation**

1. Bidders must submit firm prices, customs duties and excise taxes included, and Applicable Taxes excluded.
2. Except where the bid solicitation requires bids to be submitted in Canadian dollars, bids submitted in foreign currency will be converted to Canadian dollars for evaluation purposes. For bids submitted in foreign currency, the rate indicated by the Bank of Canada on the bid closing date, or on another date specified in the bid solicitation, will be used as a conversion factor.
3. Bidders must provide Canadian Coast Guard (CCG) DDP Delivered Duty Paid (DDP), Department of Fisheries and Oceans, Marine and Civil Infrastructure at 7025 Boul. Guillaume-Couture, Lévis, Quebec, Canada according to Incoterms 2010 for shipments from a commercial contractor. Submissions will be evaluated on a DDP basis.

#### **4.2 Basis of Selection**

SACC *Manual* Clause [A0031T](#) (2010-08-16), Basis of Selection - Mandatory Technical Criteria

## PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

### 5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

#### 5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

### 5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

#### 5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

#### 5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list during the period of the Contract.

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### **5.2.3 Welding Certification - Bid**

1. Before contract award and within two (2) calendar days of the written request of the Contracting Authority, the successful bidder must demonstrate that it has a recognized qualification for welding.
2. Welding must be performed by a welder approved by the Canadian Welding Bureau in accordance with the requirements of the following Canadian Standards Association (CSA) standards:
  - a) CSA W47.1-09 (R2014), Certification of Companies for Fusion Welding of Steel Division 2.1.

## PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

### 6.1 Security Requirements

There is no security requirement applicable to the Contract.

### 6.2 Statement of Requirement

The Contractor must meet all requirements and perform all work in accordance with this Contract, which includes the design and fabrication of new composite material shelters and accessories in accordance with the Statement of Work, the Performance Specification. and the plans in the Appendices.

### 6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

#### 6.3.1 General Conditions

[2030](#) (2018-06-21), General Conditions - Higher Complexity - Goods apply to and form part of the Contract.

##### 6.3.1.1 Warranty

Article 22 of General Conditions 2030 (2018-06-21) is amended as follows:

Paragraph 1 is deleted in its entirety and replaced by the following:

1. Despite inspection and acceptance of the Work by or on behalf of Canada and without restricting any other provision of the Contract or any condition, warranty or provision imposed by law, the Contractor warrants that, for 60 months (or any other period stated in the Contract), the Work will be free from all defects in design, material or workmanship, and will conform to the requirements of the Contract. The warranty period begins on the date of delivery, or if acceptance takes place at a later date, the date of acceptance. With respect to Government Property not supplied by the Contractor, the Contractor's warranty will extend only to its proper incorporation into the Work.

Paragraph 2 is deleted in its entirety and replaced by the following:

2. The Contractor remains responsible for correcting any defect or non-compliance that occurs during the storage period in Levis and at the Heath Pointe, Anticosti site for the warranty period including parts and labor. However, the CCG will provide helicopter air transport for the personnel (maximum of two (2) people) and parts when a correction is required at the Heath Pointe site. Consider that this air transportation would be from Havre St-Pierre airport. The manufacturer will have to go to this place by his own means.

### 6.4 Term of Contract

#### 6.4.1 Period of the Contract

The period of the contract is from the date of the contract until the end of the warranty period inclusively.

#### 6.4.2 Delivery Date

All the deliverables must be received on or before 2020-03-20.

#### 6.5 Authorities

##### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Daniel Boisclair  
Title: Supply Specialist  
Public Works and Government Services Canada  
Address: 1550 D'Estimauville Ave.,  
Quebec, QC,  
G1J 0C7

Telephone: 418-649-2831

Facsimile: 418-648-2209

E-mail address: [Daniel.Boisclair@tpsgc-pwgsc.gc.ca](mailto:Daniel.Boisclair@tpsgc-pwgsc.gc.ca)

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

##### 6.5.2 Project Authority

The Project Authority for the Contract is: (Will be added at Contract Award)

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_

Telephone: \_\_\_\_\_  
Facsimile: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

##### 6.5.3 Contractor's Representative

The Contractor's Representative for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_

Telephone: \_\_\_\_\_  
Facsimile: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

## **6.6 Payment**

### **6.6.1 Basis of Payment**

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price as specified in Annex B for a cost of \$ \_\_\_\_\_ insert the amount at contract award). Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

### **6.6.2 Limitation of Price**

SACC Manual clause [C6000C](#) (2017-08-17), Limitation of Price

### **6.6.3 Terms of Payment**

SACC Manual clause [H1001C](#) (2008-05-12), Multiple Payments

## **6.7 Invoicing Instructions**

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
  - a. The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.
  - b. One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

## **6.8 Certifications and Additional Information**

### **6.8.1 Compliance**

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

## **6.9 Applicable Laws**

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

## **6.10 Priority of Documents**

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the general conditions 2030 (2018-06-21), General Conditions - Higher Complexity - Goods ;
- (c) Annex A, Statement of Requirement;

- (d) Annex B, Basis of Payment;
- (e) Annex C, Plans;
- (f) the Contractor's bid dated \_\_\_\_\_.

#### **6.11 Shipping Instructions - Delivery at Destination**

Goods must be shipped and unloaded at the destination specified in the contract and delivered duty paid (DDP); Canadian Coast Guard (CCG), Department of Fisheries and Oceans, Marine and Civil Infrastructure, 7025, Boul. Guillaume-Couture, Levis, Quebec, Canada according to Incoterms 2000 for shipments from a commercial contractor.

##### **6.11.1 Additional delivery instructions**

During transport, the Contractor is responsible for protecting all parts, materials, equipment and works and must provide protection on the shelters to protect the outer coating thereof.

#### **6.12 SACC Manual Clauses**

D0018C	2007-11-30	Delivery and Unloading
G1005C	2016-01-28	Insurance
B1501C	2006-06-16	Electrical equipment
B7500C	2006-06-16	Excess Goods

#### **6.13 Inspection and acceptance**

The Canadian Coast Guard (CCG) Project Authority will be the Inspection Authority. All reports, deliverables, documents, goods and services provided under the Contract will be subject to inspection by the CCG Project Authority or his representative. If reports, documents, goods or services do not comply with the requirements of the Statement of Work and are not satisfactory to the CCG Project Authority, the CCG Project Authority will have the right to reject or request correction thereof. , at the contractor's expense only, before recommending payment.

Solicitation No. - N° de l'invitation  
EF928-190384/A  
Client Ref. No. - N° de réf. du client  
EF928-190384

Amd. No. - N° de la modif.  
File No. - N° du dossier  
QCN-8-41214

Buyer ID - Id de l'acheteur  
QCN039  
CCC No./N° CCC - FMS No./N° VME

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## **ANNEX "A"**

### **STATEMENT OF REQUIREMENT**



**DESIGN AND FABRICATION OF TWO COMPOSITE  
MATERIAL SHELTERS AND ACCESSORIES**

**FOR THE HEATH POINTE SITE, ANTICOSTI ISLAND**

**CANADIAN COAST GUARD**

**PERFORMANCE SPECIFICATIONS**

**PUBLIC SERVICES AND PROCUREMENT CANADA**  
**Anticosti Island Telecommunications Site**

**FOR TENDER**

**2019 05 015**

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## 1. GENERAL

### 1.1 RELATED REQUIREMENTS

- .1 This section is general in nature and presents information that may be related to all sections of the tender document.

### 1.2 WORK INCLUDED IN CONTRACT DOCUMENTS

- .1 The Canadian Coast Guard (CCG) currently has a remotely monitored telecommunications site at Heath Point, Anticosti Island. The site consists of a survival shelter, a shelter for the generating sets, and another for electronic equipment. The CCG wishes to replace these three shelters with one shelter for the generating sets, one shelter for survival purposes and for electronic equipment, and three sheds for petroleum-related equipment and electronic equipments. More specifically, the first shed will be used to store petroleum products and equipment used to fill tanks, the second shed will be used to store the decontamination kit, the content of which is detailed in Annex A for information purposes only and the third one for the maintenance of the electronic equipments.
- .2 The Work under this Contract consists of, but is not limited to:
- .1 Design and fabrication of two (2) shelters,
  - .2 Design and fabrication of three (3) sheds,
  - .3 Design of temporary and permanent foundations for the shelters and sheds,
  - .4 Design and fabrication of accessories (doors, windows, entrance vestibules, goosenecks, air inlets and outlets (I/O), cable I/O, conduit I/O, exhaust outlets, cable troughs and sleeves, etc.),
  - .5 Fabrication of two veranda/walkway extensions: one in front of the sheds and the other between the shelters,
  - .6 Supply of hardware and fasteners needed to modify the veranda, walkway and guardrails,
  - .7 Supply of hardware and fasteners needed to refurbish the two (2) columns of the exterior cable tray system.
- .3 The final destination of all deliverables is the CCG telecommunications site at Heath Point, Anticosti Island. However, the Maker must deliver the shelters, sheds and accessories to the CCG site in Lévis.
- .4 The Work covers the design and fabrication of all components stipulated in these specifications and in the Contract Drawings. This includes the preparation and handling of shelters for land transport to the Lévis site and supply of all the instructions necessary for land and/or marine transport to the Anticosti site. The latter site will be reached by a general contractor (beyond the scope of this Contract). Finally, supply of handling instructions for depositing the shelters on a barge and/or installing them on temporary or permanent foundations.
- .5 Foundations must be designed both for temporary storage of the shelters and sheds in Lévis as well as for their final installation at

Heath Point.

- |  |    |  |
|--|----|--|
| 1.3 CCG SITES INVOLVED                     | .1 | The shelters and sheds must be designed based on local conditions at the Heath Point site, located at the tip of Anticosti Island. Several design criterias are named at the section F1010, articles 1.4 and 1.5. However, the Maker must deliver fabricated items to the CCG site in Lévis. Design parameters must be approved by CCG and appear on the drawings.                                       |
| 1.4 SITE DRAWINGS AND PHOTOGRAPHIC SURVEYS | .1 | No site visit will be organized by CCG, whether for Heath Point or Lévis. A drawing and photographic survey of the sites as well as the inside of the existing shelters are provided in the annexes.   |
| 1.5 WORK SEQUENCE                          | .1 | Co-ordinate the work progress schedule based on the date on which the shelters, sheds and other deliverables must be delivered to the Lauzon site at Lévis. Refer to the paragraph 1.5.5 and subsequent paragraphs of this section and 1.16 and following – Timeline.  |
|  | .2 | Within ten (10) days following award of the Contract, submit, for approval by the CCG Representative, a work schedule in accordance with the instructions of the CCG Representative indicating the various progress stages planned for the stipulated date of completion (March 20, 2020). Once approved by the CCG Representative, this schedule will become the benchmark throughout the project.      |
|  | .3 | Certain elements related to the equipment have not yet been set. Factor in response time for the CCG Representative to validate the information on the generating sets and the location of the ventilation and exhaust inlets and outlets. This will be confirmed by the CCG Representative after the Contract is awarded. The drawings illustrate the required openings, but their location may change. |
|  | .4 | Deliver the Work under this Contract before March 20, 2020. However, provide the drawings and specifications for fabrication and construction (foundations, detail drawings, assembly drawings and installation drawings), signed and bearing the requisite stamp (in PDF format) and AutoCAD in accordance with the CCG drafting standard before September 18, 2019.                                    |
|  | .5 | Summary steps to be planned and specifically named in the schedule to be submitted. All documents to be submitted must be approved by the CCG Representative before proceeding to the next stage.  |
|  | .1 | Design of the two composite materials shelters including their accessories (doors, windows, entrance vestibules, goosenecks for air inlets and outlets (I/O), cable I/O, conduit and pipe I/O, exhaust outlets for generating sets, temporary and permanent foundations [drawings must show design criteria and reaction at the support], finishes and structures,                                       |

jacking/hoisting locations, etc.). Clearly describe in the specifications the shelter handling and preparation instructions for all types of transport, illustrated in the drawings.

- .1 Drawings and specifications at 50% completion
  - .2 Drawings and specifications at 95% completion
  - .3 Final drawings and specifications
- .2 Design of two composite materials sheds including their accessories, temporary and permanent foundations (drawings must show reaction at the support), containment pond (to be supplied), alterations to walkways, veranda, etc. Clearly describe in the specifications the shed handling and preparation instructions for all types of transport, illustrated in the drawings.
  - .1 Drawings and specifications at 50% completion
  - .2 Drawings and specifications at 95% completion
  - .3 Final drawings and specifications
- .3 CCG approval of the various versions of drawings and specifications, shop drawings and other relevant documents/data before fabrication begins: design criteria, etc.
- .4 Fabrication of composite materials shelters, sheds and their accessories.
- .5 Fabrication of composite materials alterations to guardrails, walkways, veranda, exterior cable tray system, etc.
- .6 Detail the fabrication quality controls requested by the Maker at the right times (internal control) and by the CCG Representative (approval of the various versions of the drawings and specifications, shop documents and drawings, shop inspection visits, provisional and final acceptance).
- .7 Fabrication of the composite materials extensions in front of the sheds and between the two shelters.
- .8 Conduct the shop inspection visit with the CCG Representative as a witness before road transport to the Lévis site. Tightness tests for the two shelters must be conducted at this point.
- .9 Correction of faulty work found during this final inspection visit before shipment to Lévis.
- .10 Delivery of all documentation, as-built drawings, shelter handling and preparation instructions for land and marine transport, drawings and specifications for construction and installation of shelters and sheds along with the Building Management Manual (BMM), photographic survey, etc.
- .11 Delivery of shelters, sheds and accessories to the CCG site located in Lévis.
- .12 Validation and provisional acceptance by the CCG Representative at the Lévis site with corrections of faulty work where required by the Maker immediately.
- .13 Final acceptance of the Work at the Lévis site, once all faulty work is corrected by the Maker.

## 1.6 MAKER'S USE OF PREMISES

- .1 All material must be delivered and stored outside of the Canadian Coast Guard (CCG) site in Lévis. The site is located on the south shore of the St. Lawrence River. From Highway 20, take the "Monseigneur Bourget" exit in Lévis, head northward to Highway 132. From there, head westward on Highway 132 over a distance of 0.7 km. The site entrance is located at the following street address, for which there is no roadside indication: 7025 Guillaume-Couture Blvd. The site is easy to recognize because two 45 m guyed towers are located there.
- .2 Plan for the use of overhead space before beginning handling work for the shelters in particular. Make sure there is no interference with existing overhead elements (tower guy lines, overhead wires, and so on).
- .3 The minimum number of temporary supports to be designed (e.g., timber cribs) that the Maker must provide for storage of the shelters and sheds at the Lévis site is specified below. Their configuration and the number required are to be confirmed by the Maker. During the design phase, plan for a ground support height of approximately 1 m and a configuration that allows a double drop frame semi-trailer to slide between the supports or the use of a crane. The height will be confirmed once the design of shelters will be completed. These supports will also be used at the Heath Point site before the shelters are placed on their permanent foundations. These temporary foundations must not damage the CCG property and must be easy to handle. After the shelters are designed, the CCG will specify the exact height of the permanent and temporary foundation.
  - .1 Shelter for generating sets: at least 12 supports
  - .2 Shelter for survival purposes and electronic equipment: at least 12 supports
  - .3 Sheds: at least 4 supports for each shed.
  - .4 The Lévis site will be used solely as a delivery and storage location. No other activity may take place there. Faulty work must be corrected in the shop before road transport. The only corrective work that may be performed at the CCG site is to remedy damage that occurs during road transport. Provide everything necessary for the storage to be suitable for a period of two years and thereby ensure the integrity of all deliverables. Provide wood skids so that no deliverable is laid directly on the ground. Fasten all deliverables appropriately to facilitate transport and outside storage.
- .4 The presence of the Maker must not impede CCG activities at the Lévis site. The Maker must at all times give CCG personnel or their representative safe access to the site and to the various installations.
- .5 Notify the CCG Representative at least 72 hours before visiting the Lévis site, as the CCG Representative must be present.

## 1.7 DOCUMENTS REQUIRED .1

The design of the shelters, sheds and accessories will be used to produce drawings and a specification for their fabrication and another complete set for their installation; these must be signed and bear the stamp of an engineer and an architect, both of whom are licensed in Canada, and issued in both official languages.

- .2 In addition to these drawings and specifications, shop drawings must also be issued for approval by the CCG Representative, also before fabrication commences.
- .3 Use and comply with the CCG drafting standard (Schedule D) to issue fabrication and installation drawings (including the shelter preparation and handling method). The specifications must be issued using the most recent version of the National Master Specification (NMS): temporary and permanent foundations, transport and handling, installation of shelters and sheds on temporary and permanent foundations, fabrication and installation of goosenecks, entrance vestibules and other accessories. All drawings and specifications for fabrication must be issued in French whereas those for installation/construction at the Heath Point site must be issued in both languages, including the handling and hoisting instructions for the shelters and sheds.
- .4 Submit a quality manual detailing at least the following elements. The manual must be used throughout the project and submitted before provisional acceptance of the Work at the CCG site in Lévis. The CCG reserves the right to ask questions about these elements at any time and the answers must be received within 48 hours.
  1. List of revisions and dates
  2. Quality officer
  3. Officer within organization holding responsibility and authority
  4. Preparation of bids and Contract review
  5. Engineering and development
  6. Design and drawing control
  7. Document control
  8. Selection of vendors and procurement
  9. Production and preparation of service
  10. Quality control
  11. Product identification and traceability
  12. Internal quality audits
  13. Management of nonconformities, client complaints and corrective measures



- .5 Supply for approval by the CCG Representative one copy of each of the following documents before fabrication of such components commences; all these components must then be grouped together and submitted to the CCG before provisional acceptance of the project, to be conducted at the Lévis site.
    - .1 Design drawings and specifications for the shelter, sheds, entrance vestibules and accessories, temporary and permanent foundations, etc.
    - .2 Shop drawings
    - .3 Change orders
    - .4 Other Contract amendments
    - .5 Field test reports
    - .6 Copy of approved work schedule
    - .7 Building Management Manual (BMM)
    - .8 Instructions for assembly, handling, temporary installation in Lévis and permanent installation at Heath Point for the shelters, sheds, goosenecks, entrance vestibules, walkways, verandas and all other components.
    - .9 Photos taken during fabrication of the shelters, sheds and accessories.
    - .10 Other documents as indicated.
  - .6 Submittals in accordance with Section 01 33 00– Submittal Procedures.
- 1.8 DELIVERABLES AND DELIVERY
- .1 Refer to deliverables under paragraphs 1.2.2 and subsequent paragraphs (WORK INCLUDED IN CONTRACT DOCUMENTS) of this section and detailed in Schedule C – Summary of Deliverables.
  - .2 Ensure that all openings in the shelters and sheds are protected from weather conditions during delivery.
  - .3 Appropriately package and identify cumbersome accessories (entrance vestibules, goosenecks for air inlets and outlets (I/O), parts for the veranda and walkway extension, etc.) on skids designed for that purpose.
  - 4. Package in sealed, weatherproof boxes and appropriately identify the small parts and hardware needed to assemble all the elements (air inlets and outlets [small parts], small parts for the veranda extension, parts needed to modify the walkway, all hardware including the necessary fasteners, etc.). All bolts must be of stainless steel and supplied in a sufficient number plus 10%.
- 1.9 WARRANTY
- .1 The Maker is responsible for correcting any defect that appears during the storage period in Lévis and at the Heath Point site, Anticosti, for a total period of five (5) years, including parts and labour. However, the CCG will provide air transport by helicopter for the personnel (maximum two persons) and parts when corrective work is necessary at the Heath Point site. It should be assumed that

this air transport will depart from the airport in Havre St-Pierre. The Maker must reach this location by its own means.

#### 1.10 MATERIAL SUPPLIED .1 BY CCG

The CCG will not supply any material, bolts, conduits or ducts, equipment or either items regardless of what may be suggested elsewhere in the specifications, annexes or Contract Drawings, except for the following items:

- .1 Electric toilet to be installed in the survival section.
- .2 Air exchanger (unit only) to be installed in the survival section.

- .2 The Maker must provide the conduits, ducts, accessories and all the hardware necessary for installing these two items of equipment. Electrical connection is beyond the scope of this Contract. This equipment and their conduits must appear in the drawings during the shelter design phase.
- .3 The Maker is responsible for providing all material and equipment necessary to perform the Work as described in this project
- .4 The material supplied by the CCG can be picked up at the following address. An appointment must be made with the CCG Representative at least 48 hours in advance of pick-up:

CCG Quebec Base  
101 Champlain Blvd.  
Quebec City, QC  
G1K 7Y7

#### 1.11 SPECIFIC REQUIREMENTS

- .1 The CCG plans to install a full-immersion fire suppression system like the Novec 1230 system with a 4.2% concentration at 21°C (70°F) activated by crossed-zone smoke detection for the generating-set shelter (beyond the scope of this Contract). The shelter must thus be smoketight to ensure the efficacy of this type of fire suppression system. The Maker must test for smoke tightness to meet this criterion at the time of factory acceptance immediately prior to delivery to the Lévis site, with the CCG Representative as a witness. If the Work fails this test, the Maker must carry out the necessary corrective work. The type of suppression system will be confirmed after this Contract is awarded. The required tests will be similar. The Maker must perform the following work, among other work, and must hire a specialized firm to conduct the tightness tests:
  - .1 Finish fabricating the shelter and have installed the double door and single door with drop seals. Shut the doors.
  - .2 Temporarily close all other openings of this shelter. The means used to close the openings must be effective without damaging the shelter, finishes and planned use (air inlets and outlets, generator exhaust pipe, penetration of electrical conduits and cables, etc.).

- .3 Assist the specialized firm that will perform factory tightness tests.
- .4 Perform the test described in paragraph 1.13.2 and subsequent paragraphs of this section or the test best suited to the suppression system selected by the CCG.
- .5 If the test is successful, remove the material used to block the openings of the generating-set shelter and correct any fault or deficiency resulting from the tests. If the test fails, conduct corrective work to make the shelter smoketight and repeat the test until it meets the mandatory criteria.
- .2 Factory Quality Control – Tightness Test
  - .1 The Maker must perform the tightness test with a 970 HP RETROTEC machine or a more recent version, as earlier versions will not be accepted.
  - .2 The test must show sufficient tightness to maintain a 4.2% concentration of the fire-suppression agent at the predetermined height (height of the control consoles for the generating sets).
  - .3 Tightness of the generating-set shelter protected by the Novec 1230 system (or other system to be specified)
    - .1 In accordance with the NFPA 2001 standard or a more recent version
    - .2 Submit to the CCG Representative a written report signed by the specialized firm on all the test results, including those that demonstrate compliance.
- 1.12 PROJECT KICK-OFF MEETING
  - .1 In the days following Contract award, the CCG Representative will convene a kick-off meeting which the Maker's project manager must attend. The meeting will be held in French at the Quebec Base of the Canadian Coast Guard, at the following address:

CCG Quebec Base  
101 Champlain Blvd.  
Quebec City, QC  
G1K 7Y7
  - .2 Before this meeting, the Maker must submit to the CCG Representative a detailed work schedule as well as its prevention (health and safety) and quality control programs, including the inspections to be conducted by the CCG, including provisional and final acceptance.
- 1.13 SITE MEETING (Shop)
  - .1 The CCG Representative will organize and set the times of site meetings and will be responsible for preparing and distributing the minutes, where applicable. These meetings will take place on the premises where the shelters, sheds and accessories are to be fabricated.

#### 1.14 PHOTOGRAPHS

- .1 The Maker must take photos at every step of the work. In total, about 200 photos must be submitted to the CCG Representative before provisional acceptance of the Work at the Lévis site.
- .2 Provide the photos in digital format and medium definition on CD-ROMs, USB keys or on a public server. Each photo must be dated and named for easy identification.

#### 1.15 CCG QUALITY CONTROL

- .1 The CCG has hired a consultant to fulfil the following mandate, among other responsibilities:
  - .1 Revise the Maker's quality control manual.
  - .2 Verify the engineering drawings for fabrication and for construction/installation of the shelters, sheds and accessories, as well as alterations to walkways and verandas with their accessories, foundations, etc. This also includes all associated shop drawings.
  - .3 Check all reports, instructions issued by the specialized firms hired by the Maker to ensure that the products and work comply with the requirements of the Contract Drawings and the engineering drawings issued during the course of this project.
  - .4 Conduct shop inspection visits during fabrication.
  - .5 Perform provisional and final acceptance of the project at the Lévis site. In between these two steps, recommend approval of the as-built drawings, photographs and the shelter BMM issued by the Maker.
  - .6 Notify the CCG within a reasonable timeframe so that it may conduct an inspection. This time period will be agreed upon at the project kick-off meeting depending on the location of the fabrication shops but cannot be less than five (5) work days.

#### 1.16 TIMELINE

- .1 All Work included in this project must be 100% complete before March 20, 2020.
- .2 The specifications and engineering (design) drawings, fabrication drawings and shop drawings must be 100% complete for July 19, 2019. These assets include, but are not limited to: shelters, sheds, goosenecks, entrance vestibules, alterations to the walkways and the veranda, temporary and permanent foundations, shelter and shed handling instructions, repair of the existing cable tray system, etc.
  - .1 Submit, for CCG comments, the preliminary version of all documents completed to 50% before July 31, 2019.
  - .2 Submit, for CCG comments, the 95% completed version of all documents before August 28, 2019.

- .3 Submit, for CCG approval, the final version of all required documents completed to 100% before September 18, 2019.
  - .3 The final inspection of the Work at the shop before delivery to Lévis must occur before February 19, 2020. During this inspection, the tightness tests must take place and be witnessed by the CCG and the specialized firm hired and paid by the Maker.
  - .4 The date of receipt for all closeout submittals pertaining to the project must be prior to February 26, 2020, for CCG approval. This includes, but is not limited to, the shelter and shed BMM, as-built drawings for all assets and accessories, photographic survey created during fabrication, etc.
  - .5 All assets, components, accessories and hardware must be delivered to the Lévis site before March 5, 2020. Provisional acceptance of the project will take place in the days following.
  - .6 Prior to March 19, 2020, the final acceptance will follow corrective work for faulty work identified during provisional acceptance, where necessary.
- 1.17 SNOW REMOVAL
- .1 Snow removal throughout the project is at the Maker's expense. This includes, in particular, the Lévis site where all components, temporary foundations, assets and hardware must be delivered.

## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 Performance and Construction Requirements.
  - .2 Piers
    - .1 Material: reinforced poured concrete, pipe left in place
  - .3 Spread footings anchored to rock in sufficient number
    - .1 Material: reinforced concrete.
  - .4 Provide details for the temporary foundations to be used at the CCG Lévis and Heath Point sites.
- .2 Related Requirements
  - .1 This section is general in nature and presents information that may be related to all sections of the tender document.

### 1.2 REFERENCES

- .1 CAN/CSA-A23.1-00, Concrete Materials and Methods of Concrete Construction
- .2 CAN/CSA-A23.2, Methods of Test for Concrete
- .3 CAN/CSA-A3000-13, Cementitious Materials Compendium.
- .4 American Society for Testing and Materials (ASTM)
  - .1 ASTM C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
  - .2 ASTM C78, Standard Test Method for Flexure Strength of Concrete (Using Simple Beam with Third-Point Loading)
  - .3 ASTM C293, Standard Test Method for Flexure Strength of Concrete (Using Simple Beam with Center-Point Loading)
  - .4 ASTM C496, Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
- .5 Geotechnical study, VHF Communications Tower, Anticosti, November 1984 – Annex B.

### 1.3 DESIGN AND SERVICE LOADS

- .1 Seismic Resistance
  - .1 Conforming to light to moderate seismic activity.
- .2 Design the foundations based on recommendations by the structural and geotechnical engineer for the design loads and local soil conditions and in accordance with the site's geotechnical study (Annex B). For working load limits, refer to the Contract Drawings and the various annexes.
- .3 The geotechnical study must be used only as a guide. It is up to the designer to draw conclusions specific to the scope of existing conditions and the adequacy of the study for appropriate design and installation of the foundations.

- |  |    |   |
|--|----|---|
|  | .4 | The CCG is considering conducting a complementary geotechnical study in summer 2019. The results will be given to the Maker, who must adjust the design of the permanent foundations if necessary.  |
| 1.4 SUBMITTALS FOR<br>APPROVAL/<br>INFORMATION | .1 | Drawings and specifications for construction/installation: provide the drawings and specifications required for fabrication and for construction bearing the stamp of a qualified structural engineer licensed in the province of Quebec, in both official languages. |

## 2. PRODUCTS

- |               |    |  |
|---------------|----|--|
| 2.1 MATERIALS | .1 | At the Heath Point site, the CCG will perform concrete work when the project is carried out in 2021: relocation of the walkway, landing and veranda, construction of the blinding slab for the tanks, etc. Below is the list of the materials to be used. <i>To prevent the general contractor responsible for the construction work at the Heath Point site from having to bring a wide range of products, the engineer who designs the permanent foundations for the shelters and shed must base himself or herself on these and ideally use the same products and materials. Where impossible, discussions must be held with the CCG Representative to harmonize all concrete requirements for the overall project.</i> |
|               | .1 | Tubular column forms: round, spirally wound laminated fiber forms, internally treated with release material.   |
|               | .2 | Reinforcements: high strength steel bars.  |
|               | .3 | Concrete:  |
|               | .1 | Mixture of GU-type (formerly Type 10) cementitious materials with a compressive strength at 28 days of 40 MPa.   |
|               | .2 | Water free of any harmful quantity of oil, acids, alkalis, soluble chlorides, organic matter or any other harmful substance.   |
|               | 3. | Fine and coarse aggregates of normal density; the maximum nominal size of the coarse aggregate is 20 mm.   |
|               | .4 | Air content: 4% to 7%.   |
|               | .5 | Settlement between 75 and 125 mm.  |
|               | .6 | The use of calcium chloride is prohibited as a concrete additive.  |
|               | .7 | The mixing water must be freshwater that is clean and potable.   |

### **3. EXECUTION**

#### **3.1 PERMANENT FOUNDATIONS**

- .1 Prepare drawings and specifications for the permanent foundations of the various shelters and sheds for potential future construction (beyond the scope of this Contract). Submit documents for approval by the CCG Representative in accordance with Section 01 33 00 – SUBMITTAL PROCEDURES.

**END OF SECTION**



## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 Performance and Construction Requirements.
  - .2 Temporary Foundations
    - .1 Materials: In general, temporary foundations are made of timber in the form of cribs.
  - .3 Provide details for the temporary foundations to be used at the CCG Lévis site for storage as well as those for Heath Point before the shelters and sheds are installed on the permanent concrete foundations to be designed.
- .2 Related Requirements
  - .1 This section is general in nature and presents information that may be related to all sections of the tender document.

### 1.2 REFERENCES

- .1 Geotechnical study for the Heath Point site, VHF Communications Tower, Anticosti, November 1984 – Annex B.
- .2 Site layout plan for Lévis where the shelters, sheds and other related elements are to be stored. These must show the sections for material constituting the storage surface.

### 1.3 DESIGN AND SERVICE LOADS

- .1 Seismic Resistance
  - .1 Conforming to light to moderate seismic activity.
- .2 Design the foundations based on recommendations by the structural and geotechnical engineer for the design loads and local soil conditions and in accordance with the geotechnical study (Annex B) for the Heath Point site and based on the layout created at the Lévis site.
- .3 The geotechnical study must be used only as a guide. It is up to the designer to draw conclusions specific to the scope of existing conditions and the adequacy of the study for appropriate design and installation of the foundations.
- .4 The temporary foundations must factor in the same working load limits as for the permanent foundations. In fact, a complete test bed will be performed at the Lévis site for all mechanics in the two shelters, installation of the kitchen cabinets and furnishings in the survival section, etc.

### 1.4 SUBMITTALS FOR APPROVAL/ INFORMATION

- .1 Drawings: provide the required drawings bearing the stamp and signature of a qualified professional engineer licensed in the province of Quebec.

## **2. PRODUCTS**

### **2.1 MATERIALS**

- .1 The materials used must be light, offer a degree of flexibility in terms of configuration and be sufficient in number as well as easy to transport by land and sea.

## **3. EXECUTION**

### **3.1 TEMPORARY FOUNDATIONS**

- .1 Preparation of drawings and specifications for the temporary foundations of two shelters and sheds in sufficient number to ensure their stability without strain or movement. No break must appear and no joints must open (inside or outside). Submit documents for approval by the CCG Representative in accordance with Section 01 33 00 – SUBMITTAL PROCEDURES.
- .2 Construction of foundations with delivery to the CCG site in Lévis.

**END OF SECTION**

## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 Minimum installation and performance requirements for vinyl (PVC) windows.

### 1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-12. 20-[M89], Structural Design of Windows for Buildings.
- .2 Canadian Standards Association (CSA)/CSA International
  - .1 CSA A440/A440.1-[F00], Windows/Special Publication A440.1-00, User Guide to CAN/ CSA-A440-[CSA-A440], Windows.
  - .2 CSA A440.4-[F98], Window and Door Installation.
  - .3 CAN/CSA G164-[M92(R2003)], Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 National Building Code of Canada (NBC)

### 1.3 DESCRIPTION OF WORK

- .1 Thermally broken PVC windows with the following characteristics for the survival section, in particular:
  - .1 Four (4) opening casement windows based on the indications in the drawings.
  - .2 Glazing: double-glazing.
  - .3 Screens: on ventilating portion of windows.
  - .4 Hardware: cranks with lock handle.
  - .5 Finish: mass-coloured, 20-year finish, without discolouration, tarnishing, or other change in appearance.
  - .6 Colour: white.

### 1.4 CALCULATION AND DESIGN CRITERIA

- .1 The windows must be designed, manufactured and installed in accordance with most recent version of the CAN/CSA A440 standard.
- .2 The windows must be designed taking into account the climate data for Anticosti Island set out in the National Building Code. Provide the CCG Representative with the parameters used for approval. These must appear on the signed and stamped shop drawings as well as all fabrication drawings.
  - .1 Design temperature: January temperature, consistent with the NBC.
  - .2 Hourly velocity pressure: 1 in 30 likelihood of being exceeded in a given year.
  - .3 Earthquake: based on data indicated.
- .3 Windows and their components must be designed to withstand the following stresses without deterioration.

### 1.5 SUBMITTALS FOR APPROVAL/ INFORMATION

- .1 Daily cyclical temperature difference: 40 degrees Celsius.
  - .2 Service temperature range: -35 to 35 degrees Celsius.
  - .3 Cyclical exposure to dynamic overloads like velocity pressures.
  - .4 Relative humidity level: 95%.
  - .5 13 mm load deflection of the structural frame, attributable to dead loads and overloads, strain from creep, overloads due to earthquakes, lateral spread and other such stresses.
- .4 The windows must be designed in accordance with the CSA A440 standard in terms of the minimal nominal classification criteria.
- .1 Air tightness: fixed for fixed frames.
  - .2 Air tightness: A3 for opening windows.
  - .3 Water tightness: B6.
  - .4 Resistance to wind load: C4.
  - .5 Screen: S2.
  - .6 Glazing: G1 (clear).
- .5 The thickness of the glass must be chosen in accordance with the CAN/CGSB-12.20 standard. The glass must be capable of withstanding permanent loads, lateral loads, dynamic and static loads, wind load, and loads sustained during transportation, handling and assembly.
- .6 The windows must include a controlled system for channelling to the outside water that penetrates or forms on the inside. It is important to prevent water from accumulating or stagnating inside the windows.
- .7 The air seal system, the vapour barrier and the rainscreens must be part of the seal system built into the windows. The windows must be designed so that various layers of seal correspond with those of the shelter envelope so that thermal bridges are kept to a minimum and there is appropriate control of the diffusion of air and vapour within the building envelope.
- .8 The inserts required to install the windows must be designed to take construction and installation tolerances into account.
- .1 Shop drawings: Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Shop drawings must show full-size details of the equipment and details of lintel, studs and base, the profile of the components, details of the interior and exterior trim, joints between multi-pane windows, and anchorage details.
- .3 Submit a document from the window manufacturer certifying that the windows meet the requirements set out in the previous paragraph in this section – Calculation and Design Criteria (paragraph 1.4 and subsequent paragraphs).

1.6 TRANSPORT, STORAGE AND HANDLING	.1	The windows must be delivered, stored and handled in accordance with the requirements set out in Schedule A of the CSA A440.4 standard.
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1.7 MAINTENANCE DATA	.1	Provide the necessary maintenance data and attach to the BMM.
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## 2. PRODUCTS

2.1 MATERIALS	.1	Standard products that conform to the CSA A440 standard and to this section are acceptable provided their fabrication features and the installation methods used meet the requirements of the specifications and drawings.
	.2	Include materials, products, accessories, and supplementary parts necessary to complete assembly and installation of Work in this Section.
	.3	Each window must be constructed with new material.
	.4	Isolation coating: alkali resistant bituminous coating.
	.5	Insulation: polyurethane foam designed for window insulation.
	.6	Sealants:
	.1	Application conforming to manufacturer's recommendations.
	.2	Compatibility: Provide gaskets and other related materials that are compatible with each other and with the substrates applied in the service and application conditions set out in these specifications.
	.3	Choose a colour that matches the jointing materials.
	.4	Choose sealants based on thermal expansion of the elements exposed to temperature variations.
	.5	Choose sealants that exceed the elasticity and adhesion criteria described in the following standards: CAN/CGSB 19-GP-5M, CAN/CGSB 19-GP-14M, CAN/ONGC-19.13-M87 (category 25), CAN/ONGC-19.17-M90 and CAN/ONGC-19.24-M90.

2.2 FABRICATION	.1	Components must have no defects that could alter their appearance, strength or durability.
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## 3. EXECUTION

3.1 INSPECTION	.1	Install windows to CSA-A440.4, the instructions on the revised shop drawings and the manufacturer's installation instructions.
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- .2 Install windows where indicated, ensuring that they are level, plumb and square, and fasten them securely in place to prevent warping.
- .3 Fill spaces between window jambs and adjacent surfaces with foam insulation to ensure an airtight seal.

**END OF SECTION**

## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 Materials for exterior doors, exterior service doors and oversized special exterior doors, as well as installation and performance requirements for such doors.
  - .2 Exterior Service Doors
    - .1 Insulated steel doors with galvanized steel frames.
    - .2 Hardware.
    - .3 Joint sealants.
  - .3 Doors for Entrance Vestibules
    - .1 Uninsulated composite doors.
    - .2 Hardware.
- .2 Related Requirements
  - .1 Section 06 80 00: Composite Fabrications.

### 1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM 653/653M-06a, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM E 330-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls and Doors by Uniform Static Air Pressure Difference.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 41-GP-6M-1983, Sheets, Thermosetting Polyester Plastics, Glass Fibre Reinforced.
  - .2 CAN/CGSB 41-GP-19Ma-1984, Rigid Vinyl Extrusions for Windows and Doors.
  - .3 CAN/CGSB-69.17-FM86 (R1993), Bored and Preassembled Locks and Latches.
  - .4 CAN/CGSB-69.18-FM90/ANSI/BHMA A156.1-1981 (R1993), Butts and Hinges.
  - .5 CAN/CGSB-69.19-F93/ANSI/BHMA A156.3-1989 (R1993), Exit Devices.
  - .6 CAN/CGSB-69.20-M90/ANSI/BHMA A156.4-1986, Door Controls (Closers).
  - .7 CAN/CGSB-69.21-M90/ANSI/BHMA A156.5-1984, Auxiliary Locks and Associated Products.
  - .8 CAN/CGSB-69.29-93/ANSI/BHMA A156.13-1987, Mortise Locks and Latches.
  - .9 CAN/CGSB-69.32-FM90/ANSI/BHMA A156.16-1981 (R1993), Auxiliary Hardware.
- .3 Canadian Standards Association (CSA)/CSA International

- |  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>.1 CAN/CSA O132.2 Series-90 (R1996), Wood Flush Doors.</li> <li>.2 CAN/CSA-O141-91 (R1999), Softwood Lumber.</li> <li>.3 CAN/CSA-O325.0-92 (R2003), Construction Sheathing.</li> </ul>  |
|  | .4 Canadian Steel Door Manufacturers Association (CSDMA)   |
| 1.3 DESIGN AND PERFORMANCE REQUIREMENTS  | <ul style="list-style-type: none"> <li>.1 Exterior Entrance Doors: doors and frames installed in exterior walls must be designed so that: <ul style="list-style-type: none"> <li>.1 their components can accommodate expansion and contraction within service temperature range of -35 to 35 degrees Celsius, with a daily cyclical temperature difference of 40 degrees Celsius.</li> <li>.2 the play needed for the structure to bend is assured so that loads are not transmitted to the frames; and</li> <li>.3 the thermal resistance rating (RSI) is 1.9.</li> </ul> </li> <li>.2 The doors of the shelters and shed must have a composite entrance vestibule (which serves as a storm door) with stainless steel stopper at two different points on the door. Provide a plate that will be secured to the steel grid floor so that the stopper can serve its purpose once the door is closed. It must not impede CCG activities. For the door to the entrance vestibule, provide hardware that locks with a simple mechanism to prevent corrosion from altering its operation. The solution must not impede traffic or the relocation of heavy objects using shear legs or a hand truck. Design the shelter-entrance vestibule assemblies so that these can be assembled and dismantled.</li> </ul> |
| 1.4 SUBMITTALS FOR APPROVAL/ INFORMATION | <ul style="list-style-type: none"> <li>.1 Provide submittals in accordance with Section 01 33 00 - SUBMITTAL PROCEDURES.</li> <li>.2 Shop Drawings: <ul style="list-style-type: none"> <li>.1 Shop drawings must show or indicate the following: the type of door and frame, materials, extruded profiles, method of assembly, position of hardware, insulation, reinforcement components and required clearances, location of visible fasteners and handling mechanisms. Includes doors for entrance vestibules and their hardware.</li> <li>.2 Submit details from manufacturer's catalogues showing sections, dimensions and method of assembly for proposed type of door and frame.</li> <li>.3 Shop drawings must include names of doors with references and numbers corresponding to those used on the drawings and the list of doors.</li> </ul> </li> <li>.3 List of Hardware: Submit a list of prescribed hardware, making sure to indicate the brand, model, material, function and finish and any other pertinent information.</li> <li>.4 Quality Assurance: <ul style="list-style-type: none"> <li>.1 Test Reports: Submit certified test reports from approved</li> </ul> </li> </ul>  |



- independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
- .2 Certificates: Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Instructions: Submit manufacturer's installation instructions.

## 2. PRODUCTS

### 2.1 EXTERIOR SERVICE DOORS

- .1 Insulated, Galvanized Steel Doors.
  - .1 Description: thermally broken insulated doors with galvanized steel exterior frames, rated as fire-resistant, including weather stripping and stainless steel hardware.
  - .2 Metal components: hot dip galvanized sheet steel to ASTM A 653/A 653M, minimum thickness of bare metal to CSDMA, Table 1 - Thickness for Component Parts.
  - .3 Reinforced core: panels soldered to insulated core.
    - .1 Polyurethane core: rigid cellular modified polyisocyanurate boards, with a density of 32 kg/m<sup>3</sup>, to the CGSB 51-GP-21M Standard. Insulation meeting the thermal resistance rating (RSI) specified in the performance requirements.
    - .2 Strengthened around the edges every 150 mm.
  - .4 Finish
    - .1 Prefinished doors, with factory-applied facing. Colour to be determined with the CCG Representative and the architect.
  - .5 Fabrication
    - .1 Doors and frames must be fabricated in accordance with CSDMA specifications.
    - .2 Doors and frames must be fabricated according the maximum front dimensions and profiles indicated.
    - .3 Doors and frames must be cut, strengthened, drilled and bored as needed to fit necessary mortised hardware using templates furnished by the finish fit hardware vendor. Frames must be strengthened as needed to fit surface-mounted hardware.
    - .4 Thermally broken doors must have an insulated core and the exterior components must be separated from the interior ones by a continuous rupture member with a lock seam.
    - .5 Thermally broken door frames must have a continuous rupture membrane with a lock seam that separates the exterior components from the interior

- ones.
- .6 The thermal break must be made of extruded rigid PVC to CGSB 41-GP-19Ma.
- .7 Doors and frames must be insulated.
- .2 Composite Doors (for entrance vestibules).
  - .1 Description: composite doors with weather strip and stainless steel hardware.
  - .2 Construction – flush doors: materials to Section 06 80 00 – Composite Fabrications.
  - .3 Stainless steel hardware.
  - .4 Simple locking mechanism in two different places, ideally of stainless steel or, if not, of galvanized steel.
- .3 Hardware
  - .1 Locks and Bolts
    - .1 Reamed and pre-assembled locks and bolts to CAN/CGSB-69.17.
    - .2 Mortised locks and bolts to CAN/CGSB-69.29.
    - .3 Lever handles: design resistant to intensive use.
    - .4 Grade 1 mortise deadlock with thumbturn on interior side, SCHLAGE L460 model, in 630 satin-finished stainless steel. The cylinder must be compatible with MEDECO cylinders. The CCG will provide these MEDECO cylinders because they are from controlled keys. The Maker must install the cylinders before delivery of the shelters.
    - .5 Stainless steel hardware.
  - .2 Butts and hinges to CAN/CGSB-69.18.
  - .3 Emergency door openers to CAN/CGSB-69.19
  - .4 Door fittings (closers) to CAN/CGSB-69.20.
  - .5 Secondary locks and related products to CAN/CGSB-69.21.
  - .6 Other hardware to CAN/CGSB-69.32.
    - .1 Door stops.
    - .2 Noise attenuators.
  - .7 Thresholds: sized to full width of opening and conforming to barrier-free design requirements.
  - 8 Weather stripping.
    - .1 Studs and lintel: extruded aluminum frame with seal.
    - .2 Door sweep: extruded aluminum frame with seal.
  - .9 Astragal to design requirements adapted to configuration of door.
- .4 Sealants:
  - .1 Application conforming to manufacturer's recommendations.
  - .2 Compatibility: Provide gaskets and other related materials that are compatible with each other and with the substrates applied in the service and application conditions set out in

these specifications.

- .3 Choose a colour that matches the jointing materials.
- .4 Choose sealants based on thermal expansion of the elements exposed to temperature variations.
- .5 Choose sealants that exceed the elasticity and adhesion criteria described in the following standards:  
CAN/CGSB 19-GP-5M, CAN/CGSB 19-GP-14M,  
CAN/ONGC-19.13-M87 (category 25), CAN/ONGC-19.17-M90 and CAN/ONGC-19.24-M90.

### 3. EXECUTION

#### 3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written requirements, recommendations and specifications, including available technical bulletins, instructions in product catalogues, instructions on product packaging, and product data sheets.

#### 3.2 EXTERIOR SERVICE DOORS

- .1 Galvanized Steel Doors.
  - .1 Install doors and frames in accordance with the CSDMA installation guide. Install templates for hardware and apply sealing according to manufacturer's instructions.
  - .2 Install components plumb, square and level and at the proper height.
  - .3 Attach anchors and connectors to adjacent structures so as not to impede thermal movement.
  - .4 Maintain the continuity of the thermal insulation and air and vapour seals.
- .3 Composite Doors.
  - .1 Install doors and hardware in accordance with manufacturer's written instructions.
  - .2 Adjust hardware to operate properly.
  - .3 Once building has been constructed, readjust the doors and hardware and make sure they operate smoothly as planned.
- .4 Sealants:
  - .1 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
  - .2 Prepare surfaces in accordance with manufacturer's directions.
  - .3 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.
  - .4 Apply bond breaker tape where required to manufacturer's

- instructions.
- .5 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.
- .6 Apply sealant between door frames and contiguous elements of the building and the base of the threshold.
- .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
- .8 Clean adjacent surfaces immediately and leave Work neat and clean.
- .9 Remove excess and droppings, using recommended cleaners as work progresses.
- .10 Remove masking tape after initial set of sealant.

- .5 Adjust the weather stripping to ensure a tight seal.
- .6 Adjust moving parts so that the doors operate smoothly.

### 3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Inspection.
  - .1 Obtain written report from manufacturer confirming compliance of Work, in handling, installing, applying, protecting and cleaning of Work.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

**END OF SECTION**

## 1. GENERAL

### 1.1 RELATED REQUIREMENTS

- .1 Section 2 06 10 00.01 – Rough Carpentry (Short Form)
- .2 Section 06 71 00 – Structural Composite Shapes and Plates
- .3 Section 06 80 00 - Composite Fabrications

### 1.2 REFERENCES

- .1 National Building Code of Canada (NBC)
- .2 American Society for Testing and Materials International (ASTM)
  - .1 ASTM C 645-14, Standard Specification for Non-Structural Steel Framing Members
  - .2 ASTM C754-14, Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
  - .3 ASTM C 1047-14a, Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.34-[M86 (R1998), Vapour Barrier, Polyethylene Sheet, for Use in Building Construction
  - .2 CAN/CGSB-71. 25-[M88] Adhesive, for Bonding Drywall to Wood Framing and Metal Studs
- .4 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials
  - .2 CAN/ULC-S102, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

### 1.3 DESIGN AND PERFORMANCE REQUIREMENTS

- .1 Fire-Resistance in Survival Section
  - .1 The assembly fire resistance rating must be based on tested assemblies from NBC, NRC, ULC or WH.
    - .1 Fire separation rated at least 1 hour for the partition separating the section with electronic equipment from the survival section; non-flammable materials; surface flame-spread rating of 25 or less and smoke development rating of 300 or less.
    - .2 Ensure that the interior door affixed to that wall maintains the necessary fire resistance. Employees who may be sleeping in the survival section must be properly protected.
- .2 Plan for the use of an inert gas fire suppression system like NOVEC1230 in the generating-set shelter. The type of gas is yet to be confirmed.
- .3 Interior partitions must enable the CCG to affix equipment, tools,

Design and Fabrication of Two Composite Material Shelters and Accessories Heath Point, Anticosti Island	INTERIOR PARTITIONS	Section C1010 Page 2 of 4 2019 01 16
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kitchen cabinets, bookcases, etc., anywhere on the walls. For an overview of how the walls will be used, refer to Annex E - Photographic Survey of Elements to Be Secured to Shelter Walls for the various sections of the shelters as well as the proposed inside fit-out drawing. The content of the inside fit-out drawing is for information purposes only.

- .4 Selection of the interior partition type (composite or plywood boards and sheets) will be based on cost-efficiency and these design requirements.

#### 1.4 SUBMITTALS FOR APPROVAL/ INFORMATION

- .1 Provide submittals in accordance with Section 01 33 00 - SUBMITTAL PROCEDURES.
- .2 Technical Data
  - .1 Submit design data in accordance with Section 01 33 00 - SUBMITTAL PROCEDURES.
  - .2 Provide product data and other details from the manufacturer's or vendor's specifications that can be used to describe the proposed products. Additionally, provide a document proving that the products in question conform to the relevant standards indicated in the performance criteria defined in Part 2 of this section.
  - .3 Provide manufacturer's recommendations on handling, storage, installation, or application of elements and products, as well as on protective measures and cleaning.
- .3 Detail Drawings
  - .1 Submit detail drawings to indicate elevations, partition modules, materials, components, finishes, doors, firestopping (where applicable), fastening to adjacent structures and assembly details.
  - .2 The free height for the interior must be at least 2,875 mm.
- .4 Closeout Submittals: Submit necessary maintenance data for incorporation into Building Management Manual (BMM).
- .5 Samples
  - .1 Submit two (2) samples of the proposed products for Work under this section, in accordance with Section 01 33 – SUBMITTAL PROCEDURES. The samples will allow the CCG Representative to choose the forms, patterns, textures and colours of surfaces among the product range of the manufacturer/vendor and, once examined and accepted, will become the standard of quality to which the Work will be held. One of the two samples submitted in each case will be returned with a mark indicating it has been accepted.
- .6 Quality Assurance
  - .1 Test Reports: Submit certified test reports from approved independent testing laboratories indicating compliance with

specifications for fire-rating.

## 1.5 QUALITY ASSURANCE

- .1 Build mock-ups in accordance with Sections A0010 – GENERAL REQUIREMENTS and 01 45 00 – QUALITY CONTROL.

## 2. PRODUCTS

### 2.1 MATERIALS

- .1 Interior Partitions – Select among the following assemblies:
  - .1 Wallboard Partitions on Steel Framing
    - .1 Post and structural member framing system: to ASTM C 645, fabricated using hot-dip galvanized sheet steel with a minimum thickness of 0.835 mm, allowing wall panels to be screwed in.
    - .2 Plywood sheathing to Section 06 10 00.01 or composite wall panels to Sections 06 71 00 and 06 80 00.
  - .2 Wallboard Partitions on Composite Framing
    - .1 Tube post framing: materials to Section 06 71 00.
    - .2 Plywood sheathing to Section 06 10 00.01 or composite wall panels to Sections 06 71 00 and 06 80 00.
  3. Composite Sandwich Panel Partitions
    - .1 Comply with Section 06 80 00.

### 2.2 PERFORMANCE OF WORK

- .1 Materials: Capable of meeting stipulated performance criteria; functionally compatible with adjacent materials and elements; conforming to minimum requirements and relevant standards cited in the following paragraphs of this section: 1.1 – RELATED REQUIREMENTS; 1.2 – REFERENCES; and 1.3 DESIGN AND PERFORMANCE REQUIREMENTS.

## 3. EXECUTION

### 3.1 MANUFACTURER'S INSTRUCTIONS

1. Comply with the manufacturer's written requirements, recommendations and specifications, including any available technical bulletin, concerning handling, storage, installation, adjustment, protection and cleaning of the supplied products and the structure created.

**3.2 SOURCE QUALITY  
CONTROL**

- .1 Qualification of Installer/Vendor
  - .1 Obtain a qualification certificate provided by the manufacturer indicating that the installer holds at least five (5) years of experience with product installation.

**3.3 APPLICATION**

- .1 Install interior partitions and accessories in accordance with manufacturer's written instructions, product data, reference standards and authorities having jurisdiction.

**END OF SECTION**



## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 Materials, fabrication and performance criteria for prefabricated buildings.
- .2 Related Requirements
  - .1 Section B2020 – Exterior Windows
  - .2 Section B2030 – Exterior Doors
  - .3 Section C1010 – Interior Partitions
  - .4 Section 06 10 00.01 – Rough Carpentry (Short Form)
  - .5 Section 06 71 00 – Structural Composite Shapes and Plates
  - .6 Section 06 80 00 - Composite Fabrications
  - .7 Section 09 65 19 – Flooring
  - .8 Section 09 70 00 – Resilient Flooring
  - .9 Section 09 91 23 – Interior Painting

### 1.2 REFERENCES

- .1 Justice Canada (JUS)
  - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
  - .2 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).
- .3 National Research Council of Canada (NRC) / Institute for Research in Construction (IRC)
  - .1 Construction Technology Update, Number 9 - 1997, Evolution of Wall Design for Controlling Rain Penetration.
  - .2 Construction Technology Update, Number 17 - 1998, Pressure Equalization in Rainscreen Wall Systems.
  - .3 Construction Technology Update, Number 34 - 1999, Designing Exterior Walls According to the Rainscreen Principle.
  - .4 National Building Code 2015 (NBC).

- .4 Standards Council Of Canada
  - .1 CAN/ULC-S101-04, Fire Endurance Tests of Building Construction and Materials.
  - .2 CAN/ULC S102.2-10, Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies.
  - .3 CAN/ULC-S104-15, Standard Method for Fire Tests of Door Assemblies.
- .5 Information on generating sets, goosenecks, etc.: refer to project drawings. The eight (8) goosenecks must be supplied, as must the four (4) steel anchor plates. Three must be affixed to the floor structure without compromising the tightness of the resilient flooring surface (ref: Section 09 70 00). The fourth will merely be placed on the ground in the workshop section.
- .6 Electric toilet – Technical information available in Annex F.
  - .1 The electric toilet was purchased by the CCG and its installation is part of this Contract.
  - .2 The fabrication drawings must illustrate the location of the electric toilet as well as its pipes, openings in the walls and floor, etc., all of which must be approved by the CCG before fabrication of the shelter begins.
- .7 Air exchanger – Technical information available in Annex G.
  - .1 The air exchanger was purchased by the CCG and its installation is part of this Contract.
  - .2 The fabrication drawings must illustrate the location of the air exchanger as well as its conduits, openings in the walls, etc., all of which must be approved by the CCG before fabrication of the shelter begins.
- .8 CommScope and Roxtec CRL type cable entries – Technical information available in Annex H and in project drawings.
- .9 Three insulated sleeves for generator exhaust outlets – capable of withstanding a temperature of 650°C (1200°F), details to be supplied after Contract award.
- .10 Insulated and uninsulated sleeves for cables, conduits and pipes must be provided and installed in the locations indicated in the project drawings. Additional technical information available in Annex K.
- .11 Master ground plate (double plate) to be supplied and installed in accordance with the information in Contract Drawings.
- .12 Supply and install the cable troughs (150 x 150 mm) in both shelters based on indications in Contract Drawings.

### 1.3 SYSTEM DESCRIPTION

- .1 Provide shelter and shed structure and enclosure to physical dimensions shown on the following drawings. Interior dimensions must be respected, including net height (distance between floor finish and ceiling finish: 2,875 mm). Finally, ensure that the exterior mass of the shelters does not pose a problem for land and marine transport of the shelters and sheds pursuant to current statutes, codes, standards, regulations and policies, notably those of the federal and provincial governments.
- .2 Building occupancy as defined by National Building Code of Canada (NBC) is Group F, Division 3, Low-Hazard Industrial Occupancies.
- .3 Generally, the shelters are intended to enclose:
  - .1 Generating sets and workshop.
  - .2 Electronic equipment and workshop.
  - .3 A survival area with a room, electric toilet, meal area and kitchen cabinets (without a sink).
  - .4 Although several components appear on the project drawings, not all are to be supplied. However, the Maker must understand the use for which the shelters and sheds are intended so that their design and fabrication can reflect that use.
- .4 Two (2) sheds for petroleum-related equipment and an other for electronic equipments.
  - .1 Storage of petroleum products and/or spent oil, as well as equipment for filling tanks.
  - .2 Storage for decontamination kit (ref. Annex A).
  - .3 Storage for electronic parts, industrial vacuum, etc.
  - .3 Provide natural ventilation for each shed.
- .5 Goosenecks for air inlets and outlets:
  - .1 Two (2) air inlets and four (4) air outlets for the generating-set shelter.
  - .2 One (1) air inlet and one (1) air outlet for the electronics section.
  - .3 One (1) air inlet and one (1) air outlet for the air exchanger in the survival section. One (1) vent for the toilet.
  - .4 One (1) air inlet and one (1) air outlet for each shed (5 goosenecks).
  - .5 All goosenecks must be detachable to facilitate various transport until the Heath Point site is reached and must be tight once affixed to the shelters and sheds.
- .6 Six (6) composite entrance vestibules with corresponding doors. The doors on the entrance vestibules must be of the same size as those for the shelters but must be 75 mm wider for the sheds. All doors must open toward the outside on an angle of at least 90 degrees without contacting an obstacle (guardrails, in particular) and allow for easy access:
  - .1 Four (4) entrance vestibules for the exterior entrances/exits of the shelters.

#### 1.4 DESIGN CRITERIA

- .2 Two (2) entrance vestibules for the sheds.
- .7 One (1) entry for coaxial cables in the electronics shelter next to the existing outside cable tray system.
- .8 Five (5) conduit outlets in the electronics shelter and four (4) in the generating-set shelter for electrical power supply (63 mm Ø).
- .9 Three (3) outlets for the generators' exhaust pipes.
- .10 Five (5) outlets for the power supply conduits to the pumping station for the diesel and jet A tanks (63 mm Ø) and two (2) 75mm Ø outlets for the generators' diesel pipes.
- .11 One outlet for cables from the charging rack in the generating-set shelter next to the double doors. This outlet must be installed so as to be accessible in the entrance vestibule corresponding to these doors.
- .12 Three (3) outlets for outside lighting.
- .13 Ground plates: One double plate must be supplied and installed under the coaxial cable entry in the electronics section and in a shed.
- .1 The design of the system components must allow thermal expansion of components exposed to temperature differences of 70°C in order to prevent deformation, breaks in seals, needless loading of fastening devices and damage from other causes.
- .2 Ensure total absence of condensation on interior surfaces of shelters under following minimum conditions:
  - .1 Interior: 24°C, 30% RH, still air;
  - .2 Exterior: -30°C in 60 km/h wind.
- .3 Ensure that the shelters and sheds are weathertight against inclement weather and the weather conditions specific to Heath Point, Anticosti Island.
- .4 Provide for positive drainage of condensation occurring within wall construction and water entering at joints, to exterior face of wall in accordance with "Rain Screen Principles", as described by NRC/IRC.
- .5 Vapour seal shelter enclosure to withstand, without failure, design RH at design ambient temperature condition, maintained against interior atmospheric pressure of 250 Pa.
- .6 Design shelters to NBC for load calculations, based on their respective locations.
  - .1 In addition to uniform live load, design for full live load on leeward half of building frame and zero live load on windward half.

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- .2 Factor in loads from snow and rain on roof with the wind coefficient, slope coefficient (brooming) and accumulation coefficient.
- .7 Design shelter enclosure structure to accommodate, by means of expansion joints, movement in wall and structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, water penetration or glass breakage.
- .8 Design, assemble and secure building elements to shelter frame to ensure stresses in sealants and seals are within sealant manufacturer's recommended maximum.
- .9 Design shelter components to comply with thermal resistance values under the NBC.
- .10 Design shelter assembly to permit easy replacement and disassembly of components.
- .11 Allow for ceiling, piping, conduit and other interior dead loads imposed on this structure, including generating sets and their vibrations during operation and start-up.
- .12 Allow for dead loads to be suspended from ceiling, particularly in the electronics shelter.
  - .1 The cable tray system in the electronics section must be 305 mm (12 inches) wide by 102 mm (4 inches) high with a bar every 152 mm (6 inches) and in 3 m long sections. T&B model: AH1412L06-3.
  - .1 The cable tray system must be secured in two directions. Provide the ceiling reinforcement and fastening strips necessary for its future installation.
- .13 Access units, doors, and windows to sizes and locations indicated. These components must also be weatherproof, insulated and weatherstripped. Ensure that the fire-rated door between the survival and electronics sections is fire-rated for at least one (1) hour, to CAN/ULC-S104, and meets the recommendations of the architect in charge of shelter and shed design.
- .14 Design assemblies for survival shelter components to fire and smoke separation requirements.
  - .1 Fire separations a minimum of one (1) hour.
- .15 Ensure a minimum free height inside shelters (from flooring finish to ceiling finish) of 2,875 mm.
- .16 Design floor of generating-set shelter so that a containment basin that is 50 mm in height from the base of door thresholds on the inside is created throughout the shelter. On the walls, the migration of the liquid membrane must be 100 mm. Provide and apply flooring to Section 09 70 00 – RESILIENT FLOORING.

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- .17 Ensure that wall edges and joints are at least 300 mm from any openings (doors, windows, inlets, outlets, goosenecks, and vents).
- .18 Provide the positioning of the planned equipment and design the compatible anchoring systems or interface base to withstand the specified loads.
- .19 Provide jacking/hoisting locations for handling and for road and marine transport to the Lévis and Heath Point sites based on the weight of the shelters with installed accessories and all the electrical supply and distribution, furnishings and kitchen furniture, including cabinets and counters. Most of these elements will be installed by the general manufacturer rather than the Maker for this project. Refer to Annex C for the list of elements to be supplied and installed in the fabrication project.
- .20 Provide jacking/hoisting points and methods of fastening the structures to the foundations for temporary storage of the shelters and sheds in Lévis as well as for their final installation at Heath Point. Adjust the foundation anchor points so that the generating-set shelter is lower in consideration of the containment basin.
- .21 Sheds:
  - .1 Dimensions conforming to the Contract Drawings.
  - .2 Three sheds:
    - .1 One with double doors that are raised with respect to the walkway so that the 1.2 m x 1.2 m *Justrite* containment basin, or an equivalent one, can be laid on the floor and so that upper surface is at the same level as the door to facilitate handling of 205 L (45 gal) barrels.
    - .2 The other with a standard door fitted out to be compatible with the content of the decontamination kit (subject to Annex H as a reference), also with with containment basin.
    - .3 electronic equipment parts: standard door, no containment basin and tablets.
  - .3 The doors of the entrance vestibule must be 75 mm wider so the shed doors can open to at least 90 degrees.
  - .4 Provide an interior finish so that accessories can be hung (for nailing, screwing).
  - .5 Provide two 400 mm deep shelves in two sheds. These must be soundly secured.
  - .6 The roof may be sloped where the highest point would be equal to the shelter roof and the lowest point must not be less than 2.5 m.
  - .7 Provide natural adequate ventilation in each shed with an inlet and outlet without compromising tightness (to snow and water). Three goosenecks are required.
- .22 Design entrance vestibules and corresponding doors conforming to Sections 06 80 00 – COMPOSITE FABRICATIONS and B2030 – EXTERIOR DOORS, with stainless steel hardware.

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- .23 Design goosenecks for the air inlets and outlets with materials conforming to Section 06 80 00. Design the shelter-gooseneck assemblies so that these can be assembled and dismantled, in order to make transport easier.
- .24 Provide the cable entry opening in the electronics section to accept the following cable connection systems: Roxtec CRL (4 in. in diameter) and CommScope 204673-8 (with eight (8) entrances).
- .25 Provide openings for electrical line inlets and outlets between the shelters, an outside power outlet and luminaires, diesel pipes and electrical power for the tanks.
- .26 Use water-repellent and rot-proof materials for all structural and cladding components of the shelters, sheds and accessories.
- .27 Provide an interior finish so that accessories can be hung in each shelter (for nailing, screwing). This may be a framing or other system that allows for mechanical hanging every 200 or 250 mm (vertically and horizontally). Plywood can also be used as long as the composition of the firewall factors in this finish.
- .28 Supply and install insulated and uninsulated sleeves in the cable troughs.
- .29 All design parameters must explicitly appear on the first page of the set of drawings, signed and stamped, including load at the supports, as well as a table of parts with their weight and mass. This information will be used for land and marine transport and for installation.
- .30 Everything must be designed by an architect and an engineer licensed in the province of Quebec and all documents must signed and stamped.

## 1.5 PERFORMANCE REQUIREMENTS

- .1 The shelters must have an air and vapour seal system and a continuous, complementary and compatible thermal insulation system.
- .2 The shelter enclosures must include an outer and inner siding, an air and vapour barrier system and thermal insulation.
  - .1 Components must be sturdy enough to serve as an interior finish.
- .3 Shelter walls and their components must be designed so that there is as little air infiltration as possible caused by the dynamic pressure from air on the exterior walls including windows, glazing, doors and other interruptions in airtightness. When subjected to a differential pressure of 75 Pa, the airtightness system must not show an infiltration rate greater than 0.01 L/s/m<sup>2</sup>.

- .4 Shelter walls and their components must be designed so that there is as little air infiltration as possible caused by the static pressure from air on the exterior walls including windows, glazing, doors and other interruptions in airtightness. When subjected to one hour of wind pressure with an occurrence of once in 10 years, under the NBC, the airtightness system must not show an infiltration rate greater than 0.01 L/s/m<sup>2</sup>.
- .5 There must be no break in the materials or seals.
- .6 The walls must permit thermal movement of the components caused by temperature variations within a range of -30 to 40 degrees Celsius without buckling, rupture of seals, abnormal stress to fastenings, or any other harmful effects.
- .7 Expansion joints must be made to accommodate play in the wall system and between the walls and shelter frame caused by shifting of the frame and dynamic loads on the members and thus prevent such damage as permanent warping of members, cracks in joints and deterioration of fillers (joint backing), breakage of seals and water infiltration.
- .8 Framing elements must be designed to withstand permanent loads and wind load calculated in accordance with the National Building Code of Canada (NBC) so that deflection does not exceed [1/360] of the span.
- .9 Watertightness: the exterior of the facade and the wall panels must be designed in keeping with the rainscreen principle defined by the National Research Council of Canada and must prevent water infiltration into the interior systems.
- .10 Ensure that condensation which forms inside the walls and rainwater which penetrates through joints is effectively channelled to the outer surface of the walls, in keeping with the rainscreen principle defined by the NRC's Institute for Research in Construction (IRC). Water channelled to the outer surface must not damage the finish, nor must it cause puddles or icicles to form.
- .11 Ensure total absence of condensation on interior surfaces of shelters under following conditions:
  - .1 Interior: temperature of 24 degrees Celsius, 30% relative humidity, still air.
  - .2 Exterior: temperature of -30 degrees Celsius, 60 km/h wind.
- .12 Shelter enclosures must be sufficiently sealed against vapour to withstand, without failing, the relative humidity used for the design, at the ambient temperature used for the design, when the inside atmospheric pressure is 250 Pa.
- .13 All shelter walls, ceilings and floors must have thermal resistance ratings conforming to the NBC.



- .14 Transfer through the walls must not exceed  $3 \text{ ng/ Pa.s.m}^2$ .
- .15 Maximum deflection for roofing under full specified live load:  $1/360$  of clear span.
- .16 Maintain following tolerances for shelter structure and enclosure elements.
  - .1 Maximum variation from plane or location shown on shop drawings:  $1 \text{ mm/1 m}$  of length.
  - .2 Maximum offset from true alignment between two adjacent members abutting end to end, in line:  $1 \text{ mm}$ .
- .17 Sealants
  - .1 Select sealing products based on conditions in the location where the products are to be used; carefully follow the manufacturer's instructions for applying the product.
  - .2 Sealing products must not be used to mask or rectify errors, design flaws or manufacturing defects.
  - .3 The colour of the sealing product must match the colour of the adjacent surfaces. Provide sealant resistant to ultra-violet degradation or fading.
- .18 Floors
  - .1 Maximum deflection for the joists/beams or sandwich panels subject to specific excess loads is  $1/360$  of the span.
  - .2 Floors must be designed to bear the specific weight of the planned mechanical equipment, but the uniform dead loads must not be less than  $3.6 \text{ kPa}$  greater than the self-weight of the floor.
  - .3 Bases and other mounting pads must be provided for the mechanical equipment, as well as sleeves for cable glands, cable trays and other integrated mechanical and electrical devices.
  - .4 The construction must reduce vibrations from mechanical equipment.
  - .5 Design the floors of the generating-set shelter to bear a load of  $1,500 \text{ kg}$  per generating set, excluding the steel anchor plates. Consider the presence of a fourth generating set in the workshop section.
- .19 Construction Elements to Counter Lateral and Vertical Stress
  - .1 Interior walls must neither be weight-bearing nor intended to resist lateral stress so that the building can be subsequently altered, where necessary.
  - .2 Exterior walls must be designed so that the planned openings can be made.
  - .3 Reinforcing elements must be installed in the walls to allow for mounting of elements or equipment and fit-out of openings.
  - .4 Lateral stress from wind and earthquakes must be countered by braced framing all around the shelters or

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using a moment connection structure built into the walls.

- .20 Fire and Smoke Separation for the Survival Shelter
  - .1 The assembly fire resistance rating must be based on tested assemblies from NBC, NRC, ULC or WH.
  - .2 Asbestos-free materials and systems combined with tested assemblies approved by competent authorities must provide effective protection against the spread of fire, smoke and fumes, the water used for fire suppression and, when designed for that purpose, against the spread of fluids.
  - .3 The materials and systems used must provide a fire rating (increase in temperature and flame propagation) at least equal to the fire rating of the walls, floors and other nearby structures.
  - .4 Consider that a NOVEC1230 type fire suppression system will be installed in the generating-set area. The Maker is not required to supply or install this system. However, the shelter must be perfectly tight in order for that system to be efficient. The Maker must hire and pay a specialized firm to conduct tightness tests.
  - .5 The design of combined or composite systems must reflect the technical restrictions and assessments associated with the ULC, FM or WH systems that have been approved by the competent authorities.
    - .1 The materials and systems used must provide a fire rating (increase in temperature and flame propagation) conforming to that indicated in the NBC and protect against the spread of flames, smoke and fumes.
  - .6 The putties and sealants used for horizontal and vertical joints must be self-smoothing and of a type that will not collapse.
  - .7 Products must have a compressive strength that enables them to maintain their integrity based on ULC tests on vertical surfaces and must also provide support for openings in floors.
  - .8 The products used must be compatible with waterproofing membranes and with dissimilar coatings and finishes covering the adjacent floors, walls and ceilings.
  - .9 Interior partitions conforming to Section C1010.
- .21 VOC measurements for styrene must not exceed five (5) ppm in the survival area (shelter for survival purposes and electronic equipment).

## 1.6 SUBMITTALS FOR APPROVAL/ INFORMATION

- .1 Provide submittals in accordance with Section 01 33 00 - SUBMITTAL PROCEDURES.
- .2 Technical Data
  - .1 Submit technical data required for the following.

- .1 Sealants.
  - .2 Sealing tape.
  - .3 Adhesives.
  - .4 Prefabricated joints.
- .2 Specify the instructions for application of caulks and sealing tape.
- .3 Submit shop drawings stamped and signed by a qualified engineer or architect licensed in Quebec, for assemblies, components and connections designed by Maker. A statement to this effect may be included on drawings.
- .5 Indicate plans and grid lines, structural members and connection details, bearing and anchorage details, roof cladding, wall cladding, framed openings, accessories, schedule of materials and finishes, camber and loadings, and fasteners.
- .6 Indicate detailed description and location of mechanical, electrical and other systems in Work.
- .7 Describe requirements of other systems of components related to this Work but provided by others.
  - .1 Obtain the information needed to describe the work in question in an appropriate manner, including details of the placement of and constraints on these components.
- .8 Submit erection drawings to CCG Representative for approval, before fabrication.
- .9 Indicate erection dimensions and methods.
- .10 Manufacturer's inspection reports: Submit to the CCG Representative the manufacturer's written reports within three (3) days of the date of inspecting the Work for compliance, as indicated in paragraph 3.2 – FIELD QUALITY CONTROL of PART 3 – EXECUTION.

## 1.7 QUALITY ASSURANCE

- .1 Shop meetings: When services supplied by the Maker encompass quality control for the Work, as indicated in paragraph 3.2 – FIELD QUALITY CONTROL of PART 3 – EXECUTION, plan shop visits at the following stages:
  - .1 After delivery and storage of products, and when preparatory Work is complete, but before installation begins.
  - .2 Twice during progress of Work, at 25% and 60% completion.
  - .3 Once Work is complete, tightness tests of both shelters before delivery from the shop to the Lévis site.
  - .4 Provisional and final acceptance at the CCG site in Lévis.
- .2 The CCG reserves the right to conduct inspections at any time during the preparatory work and during fabrication of the shelters,

sheds and accessories as well as during delivery.

## 2. PRODUCTS

### 2.1 MATERIALS

- .1 Construction materials: conforming to Sections:
  - .1 06 10 00.01 – ROUGH CARPENTRY (Short Form)
  - .2 06 71 00 – STRUCTURAL COMPOSITE SHAPES AND PLATES
  - .3 06 80 00 – COMPOSITE FABRICATIONS
  - .4 09 21 16 – GYPSUM BOARD ASSEMBLIES
  - .5 09 65 19 – FLOORING
  - .6 09 70 00 – RESILIENT FLOORING
  - .7 09 91 23 – INTERIOR PAINTING
- .2 Windows: conforming to Section B2020.
- .3 Doors: conforming to Section B2030.
- .4 Interior Partitions: conforming to Section C1010.
- .5 Sealants:
  - .1 Application conforming to manufacturer's recommendations.
  - .2 Compatibility: Provide gaskets and other related materials that are compatible with each other and with the substrates applied in the service and application conditions set out in these specifications.
  - .3 Choose a colour that matches the jointing materials.
  - .4 Choose sealants based on thermal expansion of the elements exposed to temperature variations.
  - .5 Choose sealants that exceed the elasticity and adhesion criteria described in the following standards:  
CAN/CGSB 19-GP-5M, CAN/CGSB 19-GP-14M,  
CAN/ONGC-19.13-M87 (category 25), CAN/ONGC-19.17-M90 and CAN/ONGC-19.24-M90.

### 2.2 ASSEMBLY

- .1 Maintain air, vapour and thermal barrier throughout shelter enclosure elements.
- .2 Complete envelope assembly with exterior skin, glass units, access units, air/vapour seal system, thermal insulation and interior finish.
- .3 Accurately fit and rigidly frame together joints, corners and mitres.
  - .1 Match components carefully to produce continuity of line and design.
  - .2 Make joints and connections toward exterior weathertight.
  - .3 Provide hairline joints for materials in contact.
  - .4 Co-ordinate location of visible joints.

## 2.3 FINISHES

- .1 Interior Finish:
  - .1 Colour: Pale, white, beige or grey shades. Present colours and CCG Representative will make final choice.
  - .2 Finish: easy-to-clean semi-gloss.
  - .3 Floors: slip-resistant.
  - .4 Floors of shelter for generating sets and survival conforming to Section 09 70 00 – RESILIENT FLOORING.
  - .5 Antistatic floor for the electronics section conforming to Section 09 65 19 – FLOORING.
- .2 Exterior Finish
  - .1 Submit finish for approval by CCG Representative.
  - .2 Finish: semi-gloss.
  - .3 Colour: White.
    - .1 With bright yellow strips at the junction between walls and roofs. This strip, in the vertical and horizontal axes, must be at least 200 mm each and be found all around the shelters.

## 3. EXECUTION

### 3.1 VENDOR'S INSTRUCTIONS

1. Comply with the vendor's written requirements, recommendations and specifications, including any available technical bulletin, concerning handling, storage, installation, adjustment, protection and cleaning of the supplied products and the structure created.

### 3.2 FIELD QUALITY CONTROL

- .1 Vendor Field Inspections.
  - .1 Obtain vendor's written reports under this section certifying that the Work is compliant as regards handling, installation, application, protection and cleaning, and submit reports on field services, as indicated in paragraph 1.6 – SUBMITTALS FOR APPROVAL/ INFORMATION in PART 1.
  - .2 Hire vendor's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with vendor instructions.
  - .3 Plan for shop visits to inspect Work as indicated in PART 1 under the QUALITY ASSURANCE paragraph.
- .2 Qualification of Installer/Vendor
  - .1 Obtain a qualification certificate provided by the manufacturer indicating that the installer holds at least five (5) years of experience with product installation.

### 3.3 CLEANING

- .1 Remove excess sealant by moderate use of low VOC mineral spirits or other solvent as directed by sealant vendor.
- .2 Clean surfaces.

### 3.4 PROTECTION

- .1 Provide protection to finished surfaces with strippable coatings, strippable wrappers, plywood or sheet materials as required before acceptance of Work.

**END OF SECTION**

## 1. GENERAL

- |                                   |    |   |
|-----------------------------------|----|---|
| 1.1 RELATED SECTIONS              | .1 | This section is general in nature and presents information that may be related to all sections of the tender document.  |
| 1.2 REFERENCES                    | .1 | AutoCAD Standard, Computer-Aided Design and Drafting Protocol (Fisheries and Oceans Canada).found in Annex D.   |
| 1.3 ADMINISTRATIVE CONSIDERATIONS | .1 | Submit to CCG Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.   |
|                                   | .2 | Do not proceed with Work affected by requirement to submit documents and samples until review of all parts is complete.   |
|                                   | .3 | Present shop drawings, product data, samples and mock-ups in metric units (SI).   |
|                                   | .4 | Where items or information is not produced in metric units (SI), converted values are acceptable.   |
|                                   | .5 | Documents must be reviewed and samples must be examined before they are submitted to the CCG Representative. Such preliminary review and examination constitute confirmation by Maker that the requirements applicable to the work have been or will be determined and verified and that every document and sample submitted has been reviewed or examined and found to conform to the work requirements and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected. |
|                                   | .6 | At the time the documents and samples are submitted, the CCG Representative must be informed in writing of any discrepancies between the documents and samples and the requirements set out in the Contract Documents, and reasons for the discrepancies must be given.   |
|                                   | .7 | Verify field measurements and affected adjacent Work are co-ordinated.  |
|                                   | .8 | The fact that the documents and samples submitted are being examined by the CCG Representative does not relieve the Maker in any way of its obligation to submit complete and accurate items.   |
|                                   | .9 | Maker's responsibility for deviations in submission from requirements of Contract Documents is not relieved by CCG Representative's   |

review.

- .10 Keep one reviewed copy of each submission at fabrication site.

### 1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Maker to illustrate details of a portion of Work.
- .2 Submit shop drawings bearing stamp and signature of qualified professional engineer or architect registered or licensed in province of Quebec, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
4. All shop drawings for shelters and sheds, entrance vestibules and goosenecks must be must submitted when 75%, 95% and 100% complete for comment by the CCG Representative.
- .5 Allow 10 days for the CCG Representative's review of each submission.
- .6 Adjustments made on shop drawings by the CCG Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the CCG Representative prior to proceeding with Work.
- .7 The Maker must make the changes to the shop drawings requested by the CCG Representative in accordance with the requirements set out in the Contract Documents. When resubmitting, notify the CCG Representative in writing of revisions other than those requested.
- .8 Accompany each submission with transmittal letter containing:
- .1 date;
  - .2 project name and number;
  - .3 name and address of the Maker;
  - .4 identification and quantity of each shop drawing, product data and sample;
  - .5 other pertinent data.
- .9 Submittals include:
- .1 date of production and dates of revisions;
  - .2 project name and number;
  - .3 name and address of:
    - .1 subcontractor;
    - .2 vendor;
    - .3 Maker;



- .4 Maker's stamp, signed by the Maker's designated representative certifying that the documents submitted are approved, that the measurements taken on site have been verified and that everything meets the requirements set out in the Contract Documents;
- .5 pertinent details of the portions of work concerned:
  - .1 fabrication details and materials;
  - .2 layout or configuration, with dimensions, including dimensions measured on site, as well as leeway and clearances;
  - .3 assembly and adjustment details;
  - .4 performance characteristics;
  - .5 reference standards;
  - .6 operating weight;
  - .7 wiring diagrams;
  - .8 single line and schematic diagrams;
  - .9 relationship to adjacent work.
- .10 After the CCG Representative's review, distribute copies of shop drawings and product data.
- .11 Submit two (2) electronic copies of the shop drawings required under the technical sections of the specifications and in accordance with the requirements of the CCG Representative: one signed and stamped PDF version and the other an unsigned AutoCAD version conforming to the reference standard.
- .12 Submit one electronic copy of product data sheets or manufacturer's documentation requested in specification sections and as requested by CCG Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .13 Submit one (1) electronic copy of the test reports prescribed in the technical sections of the specifications and as required by the CCG Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accordance with specified requirements.
  - .2 Testing must have been within 3 years of date of Contract award for project.
- .14 Submit one (1) electronic copy of the certificates required in the technical sections of the specifications and as required by the CCG Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project Contract complete with project name.
- .15 Submit one (1) electronic copy of manufacturer's instructions, as

prescribed in the technical sections of the specifications and required by the CCG Representative.

- .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

- .16 Submit one (1) electronic copy of manufacturer's field testing reports, as prescribed in the technical sections of the specifications and required by the CCG Representative.

- .1 Documentation of the testing and verification actions taken by the manufacturer's representative to confirm compliance of installed products, materials, equipment or systems with the manufacturer's instructions.

- .17 Submit one (1) electronic copy of the operation and maintenance data, as prescribed in the technical sections of the specifications and required by the CCG Representative.

- .18 Delete information not applicable to project.

- .19 Supplement standard information to provide details applicable to project.

- .20 If upon review by CCG Representative, no errors or omissions are discovered or if only minor corrections are made, fabrication and supply may proceed. If shop drawings are rejected, noted copy to be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

- .15 The review of shop drawings by Public Services and Procurement Canada (PSPC) is for sole purpose of ascertaining conformance with general concept.

- .1 This review must not mean that PSPC approves detail design inherent in shop drawings, responsibility for which must remain with Maker submitting same, and such review must not relieve Maker of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

- .2 Without restricting generality of foregoing, Maker is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

#### 1.4 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification sections. Label samples with origin and intended use.
- .2 The Maker must send the samples prepaid to the office of the CCG Representative.

- .3 Notify the CCG Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by the CCG Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the CCG Representative prior to proceeding with Work.
- .6 Make changes in samples which the CCG Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

#### 1.5 MOCK-UPS

- .1 Construct mock-up in accordance with Section 01 45 00 – QUALITY CONTROL.

**END OF SECTION**

## 1. GENERAL

### 1.1 RELATED REQUIREMENTS

- .1 This section is general in nature and presents information that may be related to all sections of the tender document.

### 1.2 INSPECTION

- .1 Allow CCG Representative access to Work at all times. If part of Work is in preparation at locations other than fabrication shop, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by CCG Representative's instructions, or law of Place of Work. The Maker is entirely responsible for co-ordinating and paying the specialized firms for conducting tightness tests on the two shelters and for all other inspections designated elsewhere in Contract Documents.
- .3 If Maker covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 CCG Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, the Maker must correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, CCG Representative will pay cost of examination and replacement.

### 1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies other than those identified as being the Maker's responsibility will be engaged by CCG Representative. The cost of such services will then be covered by the CCG Representative, except in the following cases:
  - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
  - .2 Inspection and testing performed exclusively for Maker's convenience.
  - .3 Testing, adjustment and adjustment of conveying systems and mechanical and electrical equipment and systems.
  - .4 Shop tests and certificates of compliance.
  - .5 Tests specified to be carried out by Maker under the supervision of CCG Representative.
  - .6 Tightness tests for the two shelters described in A0010 – GENERAL REQUIREMENTS.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.

- |                                   |    |   |
|-----------------------------------|----|---|
|                                   | .3 | Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.  |
|                                   | .4 | If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by CCG Representative at no cost to CCG Representative. Pay costs for retesting and re-inspection.                                  |
| 1.4 ACCESS TO<br>FABRICATION SITE | .1 | Allow inspection/testing agencies access to manufacturing and fabrication plants.   |
|                                   | .2 | Co-operate to provide reasonable facilities for such access.  |
| 1.5 PROCEDURES                    | .1 | Notify appropriate agency and CCG Representative in advance of requirement for tests, in order that attendance arrangements can be made.  |
|                                   | .2 | Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.   |
|                                   | .3 | Provide labour and facilities to obtain and handle samples and materials at fabrication site. Provide sufficient space to store test samples.   |
| 1.6 REJECTED WORK                 | .1 | Remove defective Work, whether as the result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by CCG Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.  |
|                                   | .2 | If in opinion of CCG Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, CCG Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by CCG Representative. |
| 1.7 REPORTS                       | .1 | Submit one (1) copy of inspection and test reports to CCG Representative.   |
| 1.8 TESTS AND<br>MIX DESIGNS      | .1 | Make available to the CCG Representative the test and mix design reports required or prepared by the Maker (mixes for resin, caulks, adhesives, etc.).  |
|                                   | .2 | The cost of tests and mix designs beyond those called for in Contract   |

Documents or beyond those required by law of Place of Work must be appraised by the CCG Representative.

## 1.9 MOCK-UPS

- .1 Prepare mock-ups specifically requested in specifications. Include for Work of sections required to provide mock-ups.
- .2 Fabricate mock-ups in the different locations approved by the CCG Representative and designated in the section concerned.
- .3 Prepare mock-ups for CCG Representative's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

## 1.10 SHOP TESTING

- .1 Submit shop test certificates as required under specification sections.

**END OF SECTION**

## 1. GENERAL

### 1.1 RELATED REQUIREMENTS

- .1 This section is general in nature and presents information that may be related to all sections of the tender document.

### 1.2 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 If there is question as to whether products or systems are in conformance with applicable standards, CCG Representative reserves right to have such products or systems tested to prove or disprove conformance. These tests are the responsibility of the Maker.

### 1.3 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work must be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Products found to be defective before the Work is completed, within five years of the date of provisional acceptance at the CCG site in Lévis, will be refused, regardless of the conclusions of prior inspections. Inspection does not relieve the Maker of its responsibility, but is simply a precaution against oversight or error. The Maker must remove and replace defective products at its own expense and be responsible for the resulting delays and expenses.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with CCG Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

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1.4 AVAILABILITY	.1	In event of failure to notify CCG Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, CCG Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.	
1.5 STORAGE, HANDLING AND PROTECTION	.1	Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with vendor's instructions when applicable.	
	.2	Store packaged or bundled products in original and undamaged condition with vendor's seal and labels intact. Do not remove from packaging or bundling until required in Work.	
	.3	Store products subject to damage from weather in weatherproof enclosures.	
	.4	Mineral fillers for incorporation into mortar, slurry or sealants must remain dry and clean. Store on wooden platforms and cover with waterproof tarpaulins during inclement weather.	
	.5	Store and mix paints, gel and resin coating in heated and ventilated room. Remove rags soaked with flammable substances and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.	
	.6	Remove and replace damaged products at own expense and to satisfaction of CCG Representative.	
	.7	Touch up damaged factory finished surfaces to CCG Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.	
	.8	Provide the protections necessary for storage of all components at the Lévis site for a period of two (2) years.	
1.6 TRANSPORTATION	.1	Pay costs of transportation of products required in performance of Work.	
1.7 MANUFACTURER'S INSTRUCTIONS	.1	Unless otherwise indicated in specifications, install, fabricate or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturer.	
	.2	Notify CCG Representative in writing of conflicts between specifications and manufacturer's instructions, so that CCG Representative will establish course of action.	



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	.3	Improper installation or erection of products, due to failure in complying with these requirements, authorizes CCG Representative to require removal and re-installation at no increase in Contract Price or Contract Time.
1.8 QUALITY OF WORK	.1	The Work must be of the highest possible quality, executed by workers experienced and skilled in their respective trades. Immediately notify CCG Representative if required Work is such as to make it impractical to produce required results.
	.2	Do not employ anyone unskilled in their required duties. The CCG Representative reserves right to require dismissal of workers deemed incompetent or careless.
	.3	Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with CCG Representative, whose decision is final.
1.9 LOCATION OF FIXTURES	.1	Inform CCG Representative of conflicting installation. Install as directed.
1.10 FASTENINGS – GENERAL	.1	Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise, except where stainless steel fastenings are used.
	.2	Prevent electrolytic action between dissimilar metals and materials.
	.3	Use non-corrosive steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
	.4	Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood plugs or plugs made of any other organic material are not acceptable.
	.5	Keep exposed fastenings to a minimum, space evenly and install neatly.
	.6	Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.
1.11 FASTENINGS – EQUIPMENT	.1	Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
	.2	Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
	.3	Bolts may not project more than one diameter beyond nuts.

- |  |    |   |
|--|----|---|
|  | .4 | Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.  |
| 1.12 PROTECTION OF<br>WORK IN PROGRESS | .1 | Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated, without written approval of CCG Representative. Do not otherwise penetrate a bearing structural member with any other component not shown on the drawings provided in this document. |

**END OF SECTION**

## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 This section concerns only the portions of the Building Management Manual (BMM) provided to the CCG Representative by the Maker before provisional acceptance of the project.
- .3 Acronyms
  - .1 BMM - Building Management Manual.
  - .2 Cx - Commissioning.
  - .3 HVAC - Heating, ventilation and air conditioning.
  - .4 PI - Product information.
  - .5 PV - Performance verification.
  - .6 TAB - Testing, adjusting and balancing.
  - .7 WHMIS - Workplace Hazardous Materials Information System.

### 1.2 GENERAL REQUIREMENTS

- .1 Letter-size paper (216 mm x 279 mm).
- .2 Methodology used for the update.
- .3 Professional-quality drawings, diagrams and schematic representations.
- .4 Data and information on electronic media in an accepted format approved by the CCG Representative.
- .5 Also submit an electronic version of the final document.

### 1.3 APPROVALS

- .1 Before beginning, co-ordinate requirements to prepare and submit data and information to the CCG Representative for approval.

### 1.4 GENERAL INFORMATION

- .1 Provide the CCG Representative with the information below to be included in the appropriate parts and sections of the BMM.
  - .1 Exhaustive list of the names, addresses, telephone and fax numbers for the Maker and subcontractors who took part in execution of the Work.
  - .2 Brief descriptions of the architectural and structural systems.
  - .3 Description of the building's operating conditions in emergencies and when enhanced security is required.
  - .4 Identification of the management system for system and component maintenance.
  - .5 Information on operation and maintenance of the architectural and structural systems.
  - .6 Operations and Maintenance (O&M) Manual.
  - .7 Final commissioning plan.
  - .8 Completed commissioning checklists.
  - .9 Completed product information (PI) and performance

verification (PV) report forms, reviewed and approved by the  
CCG Representative.

.10 Commissioning reports.

## 1.5 CONTENT OF OPERATIONS AND MAINTENANCE MANUAL

- .1 The CCG Representative will examine and approve the O&M Manual format and presentation within 10 weeks of Contract award.
- .2 The manual must contain the relevant brochures and documentation from vendors on the products and systems installed as part of the work.
- .3 It must be organized to facilitate manipulation of the data in the BMM and contain the documents listed below.
- .4 Required completed product information (PI) forms, as well as the relevant data and information from other sources, as necessary.
- .5 Directory of information for the installed systems and components.
- .6 Required approved shop drawings, technical data and maintenance data.
- .7 The Maker's data and recommendations on fabrication, installation, commissioning, operation and maintenance, and decommissioning processes for systems and components, and on staff training material.
- .8 List of spare parts, special tools and replacement material with indication of storage location.
- .9 Relevant information concerning the warranty (or warranties).
- .10 Inspection certificates with a summary of expiration dates, for the elements requiring periodic recertification.
- .11 Information on maintenance program, including the following.
  - .1 Recommended method and frequency of maintenance.
  - .2 Information on component removal, repair and replacement, in particular the material required to perform Work, jacking/hoisting locations, and inlets and outlets.

## 1.6 PERSONAL SAFETY COMPLIANCE MANUAL

- .1 Document Includes – The manual must cover the following information.
  - .1 All potential emergencies, including fires and smoke, electrical outages and chemical spills.
  - .2 Emergency instructions in the event of fire, electrical outages and major equipment breakdown.
  - .3 Names and addresses of the resource persons to contact in an emergency.
  - .4 Document that is easy to access and easy to understand even for users without any technical knowledge.

**1.7 REFERENCE  
DOCUMENTS TO  
BE INSERTED IN  
RELATED SCHEDULES**

- .1 Provide the CCG Representative with the reference documents for the installed systems, including the following.
  - .1 General Documentation
    - .1 Commissioning Plan - Final version.
    - .2 WHMIS information guide.
    - .3 Approved and as-built drawings and specifications.
    - .4 Commissioning instructions.
    - .5 References to specifications sections.
  - .2 Architecture and Structural Documents
    - .1 Inspection certificates and construction permits.
    - .2 Register of rooftop anchors.
    - .3 Performance control reports.

**1.8 LANGUAGE**

- .1 Separate binders must be used for the English and French versions of the BMM.

**1.9 USE OF  
CURRENT  
TECHNOLOGY**

- .1 Use current document creation technology to facilitate document access at all times and updates and to be compatible with user requirements.
- .2 Obtain approval from the CCG Representative before beginning Work.

**END OF SECTION**

## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 The following requirements apply if the Maker decides to use plywood to finish the interior. Supply and install plywood for the walls and ceilings, fascia backing and other wood elements approved in advance by the CCG. No wood may be used in the shelter and shed structures.

### 1.2 REFERENCES

- .1 ASTM International
  - .1 ASTM A 123/A 123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM A 653/A 653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 CSA International
  - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
  - .2 CSA O121-08, Douglas Fir Plywood.
  - .3 CSA O141-05(R2009), Softwood Lumber.
  - .4 CSA O151-F09, Canadian Softwood Plywood.
  - .5 CSA O325-07, Construction Sheathing.
  - .6 CAN/CSA-Z809-08, Sustainable Forest Management.
- .3 Forest Stewards Council (FSC)
  - .1 FSC-STD-01-001-2004, FSC. Principle and Criteria for Forest Stewardship.
- .4 Health Canada – Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).
- .5 National Lumber Grades Authority (NLGA).
  - .1 Standard Grading Rules for Canadian Lumber 2008.
- .6 National Research Council (NRC).
  - .1 National Building Code of Canada, 2015 (NBC).
- .7 South Coast Air Quality Management District (SCAQMD), California State.
  - .1 SCAQMD Rule 1113-A2011, Architectural Coatings.
  - .2 SCAQMD Rule 1168-A2005, Adhesive and Sealant Applications.
- .8 Sustainable Forestry Initiative (SFI).
  - .1 SFI-2010-2014 Standard Requirements.

## 2. PRODUCTS

### 2.1 CONSTRUCTION LUMBER

- .1 Construction lumber (cannot be used for the shelter or shed structures): unless stipulated otherwise, softwood, S4S (surfaced on 4 sides), with no more than 19% humidity, in accordance with the following standards and guidelines:
  - .1 CAN/CSA-O141.
  - .2 NLGA Standard Grading Rules for Canadian Lumber.

## 2.2 PANEL MATERIALS

- .1 Douglas fir plywood (DFP): to CSA O121, standard construction.
- .2 Canadian softwood plywood (CSP): to CSA O151, standard construction, face finished for paint.
- .3 Plywood, OSB and wood based composite panels: to CAN/ CSA O325.

## 2.3 ACCESSORIES

- .1 Nails, spikes and staples: to CSA B111.
- .2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

## 3. EXECUTION

### 3.1 INSTALLATION

- .1 Comply with requirements of NBC supplemented by the minimum requirements of the following paragraphs.
- .2 Install furring and blocking as required to space-out and support wall and ceiling finishes, facings, and other required work.
- .3 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .4 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

### 3.2 ERECTION

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.

**END OF SECTION**

## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes: commercially available structural composite shapes and plates processed by the Maker.
- .2 No odour from the composite materials must be perceptible inside the shelters.

### 1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 06 80 00 - Composite Fabrications.

### 1.3 REFERENCES

- .1 American Society for Testing and Materials International (ASTM).
  - .1 ASTM D4385-13, Standard Practice for Classifying Visual Defects in Thermosetting Reinforced Plastic Pultruded Products.
  - .2 ASTM E84-16, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .2 CGSB 41-GP-6M-83, Sheets, Thermosetting Polyester Plastics, Glass Fiber Reinforced.
- .3 National Electrical Manufacturers Association (NEMA).
  - .1 NEMA LI1-1998, Industrial Laminating Thermosetting Products.

### 1.4 SUBMITTAL PROCEDURES

- .1 Technical data
  - .1 Submit manufacturer's printed product literature, specifications, and data sheets in accordance with Section 01 33 00– SUBMITTAL PROCEDURES.
  - .2 Submit the relevant WHMIS Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 – SUBMITTAL PROCEDURES. The MSDS must indicate the VOC content of resins, adhesives, solvents and cleaning products.
- .2 Samples
  - .1 Submit samples to requirements of Section 01 33 00– SUBMITTAL PROCEDURES.
  - .2 Submit two (2) samples showing details for joint, edges, cutouts, and postformed profiles.
- .3 Vendor's Instructions
  - .1 Submit the vendor's installation instructions.
- .4 Closeout Submittals.
  - .1 Provide the necessary maintenance data for the materials used and attach to the BMM (Section 01 91 51).



## 1.5 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
- .4 The materials included in this section must be supplied by a manufacturer with ISO-9001 certification.

## 1.6 DESIGN CRITERIA

- .1 Design the structures, including connections, in accordance with the applicable construction codes and standards, where applicable.
- .2 Design structural elements to withstand applied loads in accordance with the criteria in Section F1010 – SPECIAL PREFABRICATED CONSTRUCTION.
- .3 Design connections to transfer loads.
- .4 Materials to ASTM E84 standard, Class A, surface flame-spread rating of 25 or less and smoke-development index of 450 or less.

## 1.7 TRANSPORT, STORAGE AND HANDLING

- .1 Storage and Protection of Laminates
  - .1 Deliver, store and handle in accordance with Section 01 61 00 - COMMON PRODUCT REQUIREMENTS.
  - .2 Where materials are stored and laid, maintain an ambient temperature of 20 degrees Celsius and a 25% to 60% humidity level, unless indicated otherwise by the manufacturer.

## 1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert recyclable or reusable materials to nearest used building materials facility.
- .2 Divert unused adhesives, coatings, resins, sealants and caulking to a special waste collection site.

## 2. PRODUCTS

### 2.1 MATERIALS

- .1 Raw materials must comply with Section 06 80 00.
- .2 Visual quality of pultruded shapes must comply with ASTM D4385.
- .3 Structural shapes and plates must be fabricated using the pultrusion process:
  - .1 A synthetic surfacing veil must surround the fibreglass reinforcement.
  - .2 Fibreglass roving must be used inside for longitudinal strength. Continuous fibreglass mats or sewn reinforcements must be used for volume resistance.
- .4 Use a compatible resin coating to seal the cut ends and exposed holes.
- .5 Exposed surfaces must be smooth and consistent with ASTM D4385.
- .6 Sheet materials must comply with the NEMA LI1 standard, Type GPO-2 or GPO-3; **or** with CGSB 41-GP-6M, Type 2 (a), Grade B.

**END OF SECTION**

## 1. GENERAL

- |                             |    |   |
|-----------------------------|----|---|
| 1.1 SUMMARY                 | .1 | Section Includes: composite components fabricated by the vendor.  |
| 1.2 REFERENCES              | .1 | CGSB 41-GP-6M-83, Sheets, Thermosetting Polyester Plastics, Glass Fiber Reinforced.   |
|                             | .2 | American Society for Testing and Materials International, ASTM E84-16 – Standard Test Method for Surface Burning Characteristics of Building Materials.   |
| 1.3 SUBMITTAL<br>PROCEDURES | .1 | Technical Data  |
|                             | .1 | Submit manufacturer's printed product literature, specifications, and data sheets in accordance with Section 01 33 00– SUBMITTAL PROCEDURES.  |
|                             | .2 | Submit the relevant WHMIS Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 – SUBMITTAL PROCEDURES. The MSDS must indicate the VOC content of resins, adhesives, solvents and cleaning products. |
|                             | .2 | Samples   |
|                             | .1 | Submit samples to requirements of Section 01 33 00– SUBMITTAL PROCEDURES.   |
|                             | .2 | Submit two (2) samples showing details for joint, edges and cutouts.  |
|                             | .3 | Manufacturer's Instructions:  |
|                             | .1 | Submit casting instructions provided by manufacturer.   |
|                             | .4 | Closeout Submittals.  |
|                             | .1 | Provide the required maintenance data for the materials used and attach to the BMM per Section 01 91 51, BUILDING MANAGEMENT MANUAL.  |
| 1.4 QUALITY<br>ASSURANCE    | .1 | Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.   |
|                             | .2 | Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.  |
|                             | .3 | Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.  |

- |  |   |
|--|---|
| <b>1.5 DESIGN CRITERIA</b>                 | <ul style="list-style-type: none"><li>.1 Design the components to be fabricated, including the joints, in accordance with the applicable construction codes and standards, where applicable.</li><li>.2 Design the components to be fabricated to withstand the applied loads. Deflection in any direction must not exceed L/240 for structural elements, unless indicated otherwise in the drawings and in the Supplementary Conditions.</li><li>.3 Joints must be designed to transfer loads.</li><li>.41 Use materials conforming to CGSB 41-GP-6M.<ul style="list-style-type: none"><li>.1 Type 2 (a), Grade B.</li></ul></li></ul> |
| <b>1.6 TRANSPORT, STORAGE AND HANDLING</b> | <ul style="list-style-type: none"><li>.1 Storage and Protection of Materials and Components<ul style="list-style-type: none"><li>.1 Deliver, store and handle in accordance with manufacturer's written instructions and Section 01 61 00 - COMMON PRODUCT REQUIREMENTS.</li><li>.2 Where materials are stored and laid, maintain an ambient temperature of 20 degrees Celsius and a 25% to 60% humidity level, unless indicated otherwise by the manufacturer.</li></ul></li></ul>   |
| <b>1.7 WASTE MANAGEMENT AND DISPOSAL</b>   | <ul style="list-style-type: none"><li>.1 Divert recyclable or reusable materials to nearest used building materials facility.</li><li>.2 Divert unused adhesives, coatings, resins, sealants and caulking to a special waste collection site.</li></ul>   |
| <b>2. PRODUCTS</b>                         |   |
| <b>2.1 MANUFACTURER'S INSTRUCTIONS</b>     | <ul style="list-style-type: none"><li>1. Compliance: Comply with the manufacturer's written requirements, recommendations and specifications, including any available technical bulletin, concerning handling, storage, installation, adjustment, formulation, protection and cleaning of the supplied products and the structure created.</li></ul>  |
| <b>2.2 MATERIALS</b>                       | <ul style="list-style-type: none"><li>.1 Raw Materials:<ul style="list-style-type: none"><li>.1 White gelcoat, resistant to discolouration from sun exposure,</li></ul></li></ul>   |

- temperature variances and weather conditions.
- .2 Type E 250 to 600 g/m<sup>2</sup> fibreglass mat.
- .3 Type E 400 to 850 g/m<sup>2</sup> fibreglass woven reinforcement or non-crimp fabric (NCF).
- .4 Type E fibreglass roving for the casting process.
- .5 Corrosion-resistant polymer resin suitable for the casting process chosen by the Maker and compatible with the reinforcements used.
- .6 Heat-insulating structural synthetic foam core.

- .2 Materials assembled to ASTM E84 Standard, Class A, surface flame-spread rating of 25 or less and smoke-development index of 450 or less.

## 2.3 CASTING

- .1 The casting process chosen by the Maker must be approved by the CCG Representative before Work begins.
- .2 Casts and tools suitable for the Maker's chosen casting process.
- .3 Cast raw materials in accordance with the vendor's instructions.
- .4 Comply with the reinforcement percentages determined by the structural calculations for each component.
- .5 After casting, no dry fibreglass filaments must be visible on any surface. All surfaces must be smooth and uniform, without evidence of irregular fibre orientation, interlaminar spaces, porosity, or resin-dense areas.
- .6 Use a compatible resin coating to seal the cut ends and exposed holes.
- .7 As necessary and in accordance with the resin vendor's recommendations, postform the components to guarantee their performance and eliminate residual VOCs.

**END OF SECTION**

## 1. GENERAL

- 1.1 SECTION INCLUDES .1 Supply and install tiles and vinyl baseboards in the area of the electronic equipment only.
- .2 Supply and apply wax.
- 1.2 REFERENCES .1 American Society for Testing and Materials International (ASTM)
- .1 ASTM F1066-04 (2010), Standard Specification for Vinyl Composition Floor Tile.
- .2 ASTM F1344-12e1, Standard Specification for Rubber Floor Tile.
- .2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-25.20-95, Surface Sealer for Floors.
- .2 CAN/CGSB-25.21-95, Detergent-Resistant Floor Polish.
- .3 South Coast Air Quality Management District (SCAQMD), California State
- .1 SCAQMD Rule 1168-A2011, Adhesives and Sealants Applications.
- 1.3 SAMPLES .1 Submit samples to requirements of Section 01 33 00– SUBMITTAL PROCEDURES.
- .2 Submit two samples of tile flooring with the required dimensions and two baseboard samples.
- 1.4 CLOSEOUT SUBMITTALS .1 Provide the necessary instructions for maintenance of resilient flooring and attach to the BMM.
- 1.5 ENVIRONMENTAL REQUIREMENTS .1 Maintain minimum 20°C temperature for ambient air and application surface for 48 hours before, during and for 48 hours after completion of the Work.

## 2. PRODUCTS

- 2.1 MATERIALS .1 *Antistatic vinyl tiles:* to ASTM F1066, Composition 1- non asbestos, Class 2 through pattern tile, 3 mm in depth and 300 mm<sup>2</sup>, in colour selected by CCG Representative.
- .1 Acceptable products: Armstrong SDT or approved equivalent, colour: fossil grey 51956.
- .2 Resilient baseboards: straight, grooved vinyl, measuring at least 1200

Design and Fabrication of Two Composite Material Shelters and Accessories Heath Point, Anticosti Island	RESILIENT FLOORING	Section 09 64 19 Page 2 of 4 2019 01 16
	mm in length x 100 mm in height x 3 mm in depth, with premoulded end pieces and angles for grooved baseboards only, of colour such as Johnsonite Grey 48 WG or an approved equivalent.	
	.3 Primers and adhesives: recommended by flooring manufacturer, for specific material on applicable substrate, above, on or below grade.	
	.4 Sub-floor filler and leveller: two-component latex filler that does not require water, as recommended by flooring manufacturer for use with their product.	
	.5 Metal edge strips must be aluminium extruded, smooth, mill finish with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.	
	.6 Wax: type recommended by flooring manufacturer.	
<b>3. EXECUTION</b>		
3.1 INSPECTION	.1 Ensure floors are dry by using test methods recommended by flooring manufacturer.	
3.2 SURFACE TREATMENT	.1 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.	
	.2 Prime and seal sub-floor to flooring manufacturer's printed instructions.	
3.3 TILE FLOORING APPLICATION	.1 Provide a high ventilation rate, with maximum outside air, during installation and for 48 hours after installation. If possible, vent directly to the outside. Do not let contaminated air circulate through a district or whole building air distribution system. Maintain extra ventilation for at least one month following building occupation.	
	.2 Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.	
	.3 Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.	
	.4 Terminate flooring at centre line of door in openings where adjacent floor finish or color is dissimilar.	
	.5 Install metal edge strips at unprotected or exposed edges where flooring terminates.	

### 3.4 BASE INSTALLATION

- .1 Lay out base to keep number of joints to a minimum. Base joints at maximum length available on the market or at internal or premoulded corners.
- .2 Clean substrate and prime with one coat of adhesive.
- .3 Apply adhesive to back of base.
- .4 Set base against wall and floor surfaces tightly by using 3 kg hand roller.
- .5 Install straight and level to variation of 1:1000.
- .6 Scribe and fit to door frames and other obstructions. Use premoulded end pieces at flush doorframes.
- .7 Cope internal corners. Use premoulded corner units for right angle external corners. Use formed straight base material for external corners of other angles and provide at least 300 mm for each wing. Wrap around toeless base at external corners.

### 3.5 CLEANING / INITIAL WAXING

- .1 Remove excess adhesive from floor, base and wall surfaces without damage.
- .2 Clean, seal and wax floor and base surface to flooring manufacturer's printed instructions.

### 3.6 PROTECTION OF FINISHED SURFACES

- .1 Protect new floors until final waxing.

**END OF SECTION**



## 1. GENERAL

### 1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM D412-16, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
  - .2 ASTM D882-12, Standard Test Method for Tensile Properties of Thin Plastic Sheet
  - .3 ASTM D624-C, Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
  - .4 ASTM D1621-16, Standard Test Method for Compressive Properties of Rigid Cellular Plastics
  - .5 ASTM D4060-14, Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
  - .6 ASTM D2240, Standard Test Method for Rubber Property—Durometer Hardness
  - .7 ASTM D2794-93, Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
  - .8 ASTM D471-16, Standard Test Method for Rubber Property—Effect of Liquids
  - .9 ASTM D543-14, Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents

### 1.2 PERFORMANCE REQUIREMENTS

- .1 Select and apply products and floor coatings so as to create seamless, continuous flooring that meets the following performance criteria.
  - .1 Minimum tensile strength 13 MPa with roughly 400% elongation to ASTM D412.
  - .2 Minimum elasticity module: 70 MPa, to ASTM D882.
  - .3 Minimum tear strength: 80 N/mm, to ASTM D624-C.
  - .4 Minimum compressive strength: 2.5 MPa (10%), to ASTM D1621.
  - .5 Abrasion resistance for 1,000 cycles, 1,000 g load – maximum weight loss values by wheel type to ASTM D4060:
    - .1 CS-10 type wheel: 18 mg
    - .2 CS-17 type wheel: 24 mg
    - .3 H-18 type wheel: 325 mg
  - .6 Hardness: 45 to 55 Shore D to ASTM D2240.
  - .7 Minimum impact strength to ASTM D2794:
    - .1 to 25°C: 16 Joules
    - .2 to -20°C: 10 Joules
  - .8 Minimum water absorption, 24 hours at ambient temperature: 1.7% to ASTM D471.
  - .9 Chemical resistance, maximum absorption, immersion for one (1) month to ASTM D543:
    - .1 engine oil: 0.18%
    - .2 transmission oil: 0.7%

### 1.3 SUBMITTALS FOR APPROVAL/ INFORMATION

- .1 Provide submittals in accordance with Section 01 33 00 - SUBMITTAL PROCEDURES.
- .2 Samples: Submit two (2) representative samples of flooring for approval, manufactured using a substrate representing that on which it is to be applied.
- .3 Quality Assurance: Submit the following documents.
  - .1 Test Reports: Submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
  - .2 Certificates: Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
  - .3 Instructions: Submit manufacturer's installation instructions.
  - .4 Manufacturer's Field Reports: Manufacturer's field reports specified.
- .4 Maintenance Data: Provide the necessary maintenance data and attach to the BMM.

### 1.4 QUALITY ASSURANCE

- .1 Manufacturer's qualifications: The manufacturer of the specified product must have instituted, at least 10 years ago, a technical training, certification and assistance program for an organized national network of "Approved Applicators for Floors" involving periodic recertification of participants.
- .2 Maker's qualification: The Maker must be among the manufacturer's "Approved Applicators for Floors" for the specified product and have completed a training program on applying a two-component resin coating for horizontal indoor surfaces.
  - .1 At the discretion of the CCG Representative, bids may be accepted from contractors that are not among the manufacturer's "Approved Applicator for Floors" for the specified product. Such contractors must provide the CCG Representative with five (5) reference projects for which they successfully applied the specified product under conditions similar to those of this project.
- .3 Warranty: The manufacturer's Approved Applicator for Floors for the specified product and the manufacturer must provide the CCG Representative with a joint warranty covering the installation and product governed by these specifications for a period of two (2) full years from the date of delivery of the shelters to the Lévis site.

- |   |    |  |
|---|----|--|
|   | .4 | Construct mock-up in accordance with Section 01 45 00 – Quality Control.   |
| 1.5 TRANSPORT,<br>STORAGE AND<br>HANDLING | .1 | Products must be stored in original and undamaged condition with manufacturer's seal and labels intact.  |
|   | .2 | The expiry date must be indicated on all packaging for epoxy resin or polyurethane resin products; the CCG Representative must be notified when the date indicated on the packaging of the delivered products is imminent.   |
|   | .3 | Products must be stored to protect against weather conditions at the temperatures recommended by the manufacturer.   |
| 1.6 PLACE OF USE                          | .1 | The liquid waterproofing membrane must be used to cover the SEAMLESS floors and bases of the following surfaces: the entire generating-set shelter (including the leak detection pit), including the survival section of the second shelter, including the room, toilet area and living space and in the three sheds. The bases must be no higher than 100 mm, except under the door sills, where a minimum 50 mm migration will be required for the generating-set shelter to create a tight containment basin. |

## 2. PRODUCTS

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|--|----|---|
| 2.1 ELIGIBLE MAKERS AND<br>MANUFACTURERS | .1 | Polyflex 201 high-performance membrane or an approved equivalent.   |
|  | .2 | Sikabond Construction Adhesive: Seal around generating-set fastening, screw holes and imperfections as well as the intersection between the floor and walls with a 10 mm diameter radius.   |
|  | .3 | PU Polyflex 111, a polyurethane, 100% solids primer.  |
|  | .4 | Substitutions: Use of a product other than that specified will be considered provided the Maker submits its request in writing to the CCG Representative at least seven (7) days prior to bid closing.  |
| 2.2 POLYFLEX<br>TECHNICAL<br>DATA        | .1 | High-performance elastomeric membrane. The membrane consists of isocyanate prepolymers that react with aminated polyols. The two liquid components react to form a prepolymer membrane when mixed and applied using a spray gun and plural component heated pump. Comply with manufacturer's recommendations. |
|  | .1 | Colour: volcanic ash (grey)   |
|  | .2 | Type of cure: 2 components  |

- .3 Binder: polyurethane and amine
- .4 Solids by volume: 100%
- .5 Solids by weight: 100%
- .6 Theoretical coverage: 1 mil: 1604 ft<sup>2</sup>/gal
- .7 D.F.T. 25 microns: 149 m<sup>2</sup> /gal
- .8 Film width: mils: 80 microns
- .9 Recommended D.F.T.: 75-2500
- .10 Viscosity: 500-600 CPS @ 25°C (77°F)
- .11 Density: 0.98/1.04
- .12 Flash point: 200°C (500°F)
- .13 Tack free: 10-30 sec.
- .14 Elongation up to 800%

### 3. EXECUTION

#### 3.1 EXAMINATION OF SURFACES

- .1 Before Work commences, the manufacturer of the floor system must inspect the substrate surfaces and notify the Maker of the shelters, the architect responsible for design, and the CCG Representative of any unsatisfactory condition. Correction must be made at no expenses and the drawings amended.

#### 3.2 PREPARATION – GENERAL

- .1 The surface must be clean and sound. Remove dust, foreign matter, coatings and disintegrated materials from the surface using an appropriate mechanical method. Create a surface profile in accordance with recommendations by the manufacturer of the products to be applied.

#### 3.3 APPLICATION

- .1 In accordance with manufacturer's instructions.
- .2 Properly clean surface.
- .3 Apply appropriate filler to cracks, depressions, and low sections so that the horizontality deviation does not exceed 1:500. Let dry.
- .4 Where applicable, follow with application of a primer to the surface based on manufacturer's recommendations.
- .5 Apply coating based on the required thickness and rate to achieve Work consistent with the prescribed performance criteria.

#### 3.4 CLEANING

- .1 Clean the coated surface in accordance with the manufacturer's instructions before submitting Work for approval by the CCG Representative.

**END OF SECTION**

## 1. GENERAL

### 1.1 SUMMARY

- .1 Section Includes
  - .1 Materials, products and methods for applying paint to new indoor substrates, except for finishes that do not require paint (e.g., gelcoat, PVC, factory finishes, etc.).

### 1.2 REFERENCES

- .1 Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
- .2 Environmental Protection Agency (EPA)
  - .1 EPA Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 - 1995, (for Surface Coatings).
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .4 Master Painters Institute (MPI)
  - .1 MPI Architectural Painting Specifications Manual, 2004.
- .5 National Fire Code of Canada, 2015
- .6 Society for Protective Coatings (SSPC)
  - .1 SSPC Painting Manual, Volume Two, 8th Edition, Systems and Specifications Manual.
- .7 Transport Canada (TC).
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.

### 1.3 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 – SUBMITTAL PROCEDURES.
- .2 Technical data
  - .1 Submit product data and instructions for each paint product to be used.
  - .2 Submit product data for the use and application of paint thinner.
  - .3 Submit sample(s).

### 1.4 ENVIRONMENTAL REQUIREMENTS

- .1 Additional Interior Application Requirements
  - .1 Apply paint finishes when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

## 2. PRODUCTS

### 2.1 MATERIALS

- .1 Paint materials for paint systems to be products of single manufacturer.
- .2 Conform to latest MPI requirements for interior painting work including preparation and priming or sealing.
- .3 Finish coat: 100% acrylic latex, VOC level E3, velvet finish like MPI 144 ref. Sico 853 series (walls)
- .4 Finish coat: 100% acrylic latex, VOC level E3, velvet finish like MPI 143 ref. Sico 851 series (ceilings)
- .5 Approved anticorrosion primer for metal, VOC level E2, MPI 135 ref. Sico 926-260 (steel doors and frames)
- .6 Anticorrosion finish coat for metal: Corrostop ref. Sico 635 series (steel doors and frames)
- .7 Alkyd primer/sealer and stain killer like Sico Expert 890-114 (walls)
- .8 Paints, coatings, adhesives, solvents, cleaning products, lubricants and other products used must have the following features:
  - .1 water-based, water soluble clean-up;
  - .2 non-flammable, biodegradable;
  - .3 manufactured without compounds that contribute to depletion of the ozone layer in the upper atmosphere;
  - .4 contain no methylene chloride (dichloromethane), chlorinated hydrocarbons or toxic metal pigments;
  - .5 total suspended solids (TSS) in undiluted production plant effluent in excess of 15 mg/L to a natural watercourse or a sewage treatment facility lacking secondary treatment.

### 2.2 COLOURS

- .1 Pale, white, beige or grey shades.
- .2 Finish: easy-to-clean semi-gloss (gloss/sheen rating 5)
- .3 Selection of colours and finishes will be from manufacturer's full range of colours.

## 2.3 GLOSS/SHEEN RATINGS

- .1 Paint gloss is defined as sheen rating of applied paint, in accordance with following values:

	Gloss at 60 degrees	Sheen at 85 degrees
Gloss rating 1 – Matte finish	max. 5	max. 10
Gloss rating 2 – Velvet finish	max. 10	10 to 35
Gloss rating 3 – Eggshell finish	10 to 25	10 to 35
Gloss – rating 4 – Satin finish	20 to 35	min. 35
Gloss rating 5 – Semi-gloss finish, traditional	35 to 70	
Gloss rating 6 – Gloss finish, traditional	70 to 85	
Gloss rating 7 – High-gloss finish	max. 85	

- .2 The gloss level of painted surfaces must conform to the surface finish nomenclature.

### 3. EXECUTION

#### 3.1 MANUFACTURER'S INSTRUCTIONS

1. Compliance: Conform to manufacturer's written recommendations or instructions, including product bulletins and technical data and instructions on product handling, storage and application.

#### 3.2 INSPECTION

- .1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to CCG Representative damage, defects, unsatisfactory or unfavourable conditions before proceeding with work.

#### 3.3 PREPARATION

- .1 Clean and prepare indoor surfaces:
  - .1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.
  - .2 After scrubbing the surfaces, rinse them with clean water until all foreign residue is removed.
  - .3 Allow surfaces to drain completely and allow to dry thoroughly.
- .2 Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.
- .3 Sand and remove the dust from surfaces between coats, as necessary, to ensure proper adherence of next coat.
- .4 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances. Remove traces of blast products from surfaces, pockets and corners to be painted using clean brushes followed by vacuum cleaning.

#### 3.4 APPLICATION

- .1 Method of application to be as approved by CCG Representative. Apply paint by brush or roller. Conform to manufacturer's application instructions unless specified otherwise.
- .2 Brush and Roller Application.
  - .1 Apply paint in uniform layer using brush and/or appropriate roller.
  - .2 Work paint into cracks, crevices and corners.
- .3 Apply each coat of paint so as to obtain a continuous, uniformly thick coat. Repaint thin spots or bare areas before next coat of paint is applied.
- .4 Allow surfaces to dry and set after cleaning and between coats; observe the minimum wait time recommended by the manufacturer.



.5 Sand and dust between coats to remove visible defects.

### 3.5 RESTORATION

- .1 Clean and reinstall hardware items removed before undertaking painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove splatters from exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.
- .4 Protect freshly completed surfaces from paint droppings and dust to approval of CCG Representative

**END OF SECTION**

## **APPENDICES**

- 
- A. Decontamination Kit
  - B. Geotechnical Study for the VHF Communications Tower, 1984
  - C. Summary of Deliverables
  - D. CCG Drafting Standard
  - E. Photographic Survey of site at Heath Pointe
  - F. Technical Data Sheets for Electric Toilet (Survival Shelter)
  - G. Technical Data Sheets for Air Exchanger (Survival Shelter)
  - H. Photographic Survey of site at Lévis
  - I. Entrances for Coaxial Cables, Electrical Conduits, Pipes for Diesel, Etc.
  - J. Insulated and Uninsulated Sleeves for Electrical Cables (Interior Partitions)
  - K. Insulated Sleeves for Generator Exhaust Pipes
  - L. Proposed Fit-Up for Survival Section (Beyond Contract Scope, CCG Requirements)





The work under this contract consists of, but is not limited to. Some documents must be issued in both official languages. If no mention, the documents can be produced only in French. Finally, all drawings must strictly follow the CCG drawing standard.

1. Design and fabrication of two composite materials shelters (specifications and drawings be issued in both official languages). Validation of all openings is required by the CCG prior to the manufacture of the shelters.
2. Design and fabrication of three composite materials sheds, two of which have a containment basin. The specifications and drawings be issued in both official languages. ). Validation of all openings is required by the CCG prior to the manufacture of the sheds.
3. Design and fabrication of composite material goosenecks (11) and gantries.(6). A procedure shall be provided to the CCG representative to secure these delivered components separately from shelters and sheds to preserve their solidity and their waterproofing.
4. Composite material parts to make: parts for the existing cable tray, parts for guardrails and the extension of the gallery and of the walkway.
5. Supply and install the doors, windows, outlet exhausts (3), electrical raceway with uninsulated or insulated sleeves, cables entry, pipes entries and outlet for outdoor lights.
6. Design and construction of the temporary foundations for the two shelters and the three sheds. The height will be confirmed by CCG representative after the design of the shelters and sheds.
7. Design of the permanent foundations of the shelters and sheds (specifications and drawings be issued in both official languages). The height will be confirmed by CCG representative after the design of the shelters and sheds.
8. Supply composite material or stainless steel hardware and fasteners needed + 10%.
9. Installation of the electrical toilet and air exchanger furnished by CCG following the maker specifications and the contract drawings. The maker is responsible to supply any parts needed to complete the installation, except the electrical part.
10. Conduct the tightness tests for the two shelters with a specialised company paid by the maker. For the test, consider that a NOVEC1230 will be installed. Give a copy of the French report to the CCG representative.
11. Preparation and handling of shelters, sheds and accessories for transportation to the CCG site. No assets, materials should be put directly on the ground: supply temporary foundations and palettes needed. The maker has to respect the comments from the CCG representative when he will arrive at the CCG site.
12. Write and deliver instructions for handling, preparing and transporting shelters, sheds and other parts (documents issued in both official languages).
13. Transmission of all technical information required in contract documents in a timely manner.

Without limitation:

- a. The drawings and specifications for all composite material assets and parts (shelters, sheds, extensions, guardrails, hardware, etc.)
- b. Shop drawings
- c. The specifications and drawings for the design of temporary foundations and the as built
- d. The specifications and drawings for construction of the permanent foundations
- e. Photographic survey made during the project.
- f. As built for the shelters, sheds, extensions and other accessories.
- g. Building management manual for shelters and sheds
- h. Quality control manual from the maker

- i. Five years warranty document (including parts and labour).









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Design and Fabrication of Two  
Composite Material Shelters  
and Accessories  
Heath Point, Anticosti Island

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TECHNICAL DATA SHEETS FOR  
AIR EXCHANGER  
(Survival Shelter)

ANNEX G  
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Design and Fabrication of Two  
Composite Material Shelters  
and Accessories  
Heath Point, Anticosti Island

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ENTRANCES FOR COAXIAL  
CABLES, CONDUITS AND PIPES  
FOR DIESEL

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Technical information will be provided after contract award by CCG representative.

Design and Fabrication of Two Composite Material Shelters and Accessories Heath Point, Anticosti Island	PROPOSED FIT-UP FOR SURVIVAL SECTION (Beyond Contract Scope, CCG Requirements)	ANNEX L Page 1 of XX 2019 01 16
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You can see the layout that the CCG intends to carry out in the Survival section on the contract drawings. No furniture, cabinets are to be provided in this contract.





## **APPENDICES**

- 
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## TROUSSE DE DÉVERSEMENT HEATH POINTE

- 10 boudins 5" x 10' hydrophobe (pour hydrocarbures);
- 10 boudins 8" x 5' hydrophobe (pour hydrocarbures);
- 4 paquets de 100 feuilles hydrophobes (pour hydrocarbures) ;
- 10 sacs d'absorbant granulaire (exemple : OilDri ou Optisorb) ;
- 2 pelles anti-statiques démontables ;
- 1 balai/brosse en fibre synthétique ;
- 30 sacs de récupération 40"x 60" x 6 mil ;
- 1 ruban 3" x 1 000' caution ou danger ;
- 12 paires de gants étanches aux hydrocarbures ;
- 12 couvre-botte grand format étanche aux hydrocarbures ;
- 6 paires de lunettes ;
- 12 habits tyvek (grandeur XXL) avec élastiques aux poignets et aux chevilles ;
- 2 pâtes bouche fuite (ex: Plug n'Dike)
- Neutralisant en poudre pour acide. (ratio de 2/1, poudre/acide). 2 seaux de 5 gallons. (ex; SEi061 de Zenith)

Fournisseur suggéré : Tenaquip





COGEMAT inc.

TRANSPORTS CANADA  
Garde Côtière Canadienne

ETUDE DE GEOTECHNIQUE  
TOUR DE COMMUNICATIONS VHF  
HEATH POINT, ANTICOSTI  
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Att: Monsieur Gervais Bouchard, ing.

# COGEMAT INC.

- GÉOTECHNIQUE (Sondages, études)
- GÉOLOGIE DE L'ENVIRONNEMENT
- CONTRÔLE ET ESSAIS SUR MATÉRIAUX  
(Sols, béton de ciment, béton bitumineux)

680 BOUL. LAURE SEPT-ÎLES,  
G4R 1X9 TÉL. (418) 962-9878

24 RUE ST-JOSEPH RIVIÈRE DU LOUP  
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Le 26 novembre 1984

Garde Côtière Canadienne  
District de Québec  
101, Boul. Champlain  
Québec, Québec  
G1K 4H9

A l'attention de M. Gervais Bouchard, ing.  
Chargé de projets

OBJET: Etude géotechnique  
Tour de communications VHF, Anticosti  
N/Dossier: 3440

Monsieur,

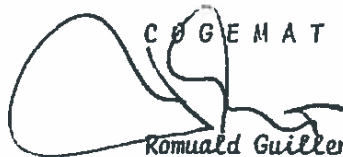
Veuillez trouver ci-joint notre rapport géotechnique relatif à  
la construction d'une tour de communications VHF à Heath Point sur  
l'île d'Anticosti.

Les travaux de reconnaissance sur le site ont été supervisés par  
notre géologue senior, M. Pierre Sylvestre. M. Daniel Chénard, ing. a  
participé à la rédaction du présent rapport avec M. Louis Langevin,  
ing. M.Sc., M. Simon Chiche, M. Ing. et le soussigné.

Nous espérons que ce document sera à votre satisfaction et demeurons  
disponibles pour toutes informations complémentaires.

Veuillez agréer, Monsieur, l'expression de nos salutations distinguées.

COGEMAT Inc.



Romuald Guillemette, ing.  
Président

RG/fb  
p.j.



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PHOTOGRAPHIES: Octobre 1984	
DESSIN: #3440-1 Localisation des sondages et coupes stratigraphiques	

## 1.0 INTRODUCTION

Les services des consultants en géotechnique, géologie de l'environnement et technologie des matériaux, COGEMAT inc., ont été retenus par Transports Canada, Garde Côtière Canadienne, pour effectuer une étude géotechnique sur le site prévu pour l'érection d'une tour de 125 mètres, à Heath Point, Anticosti.

Les termes de référence de ce mandat (dossier 4K18-176Q) ont été définis dans un document préparé par messieurs M. Grennau et G. Bouchard, ingénieurs du Service de l'ingénierie de la Garde Côtière Canadienne.

Le contrat de services du 31 août 1984 fut modifié le 20 septembre 1984.

## 2.0 DESCRIPTION GENERALE DU SITE

La presqu'île de Heath Point est située au sud de la pointe de l'est de l'île d'Anticosti, soit à quelques 30 kilomètres de la fin de la route.

Le rivage de cette presqu'île est caractérisé par un escarpement du socle rocheux calcaire, d'environ 1 à 2 mètres de hauteur. Le pied de cet escarpement prend parfois l'aspect d'une plage de gravier et cailloux.

Au-dessus du socle rocheux de l'escarpement du rivage, on retrouve une couche de dépôts meubles d'environ 1,5 mètre.

Une partie importante de la surface de cette presqu'île est recouverte de tourbière (voir photographies).

Le site de l'ouvrage projeté, situé à proximité de la roulotte de survie de la Garde Côtière Canadienne, montre très peu de relief. Ainsi la base et deux (2) des points d'ancrage seraient situés dans la tourbière.

### 3.0 TRAVAUX DE RECONNAISSANCE

#### 3.1 Chantier

Sept (7) forages ont été réalisés aux endroits indiqués sur le plan de localisation placé en annexe au présent rapport. Les travaux de reconnaissance ont été effectués du 5 au 12 octobre 1984, à l'aide d'une foreuse à diamants de type Boyles X-Ray. L'avancement du tubage de calibre BW se faisait soit par battage ou par rotation.

Les échantillons de sol ont été récupérés à l'aide d'une cuillère fendue Standard ce qui a également permis de mesurer l'Indice de Pénétration Standard "N" (coups/30 cm), le marteau de 63,5 kg tombant en chute libre de 76 cm. Le socle rocheux fut carotté en calibre AXT.

L'élévation de la surface aux points de sondages fut relevée à partir d'un repère de nivellement dont l'élévation a été arbitrairement fixée à 10,00 mètres. Ce repère est matérialisé par une tache de peinture orange, située sur la base de béton du dernier réservoir d'essence (voir dessin 3440-1).

L'indice RQD' qui est présenté à l'appendice 1, a été calculé de la même façon que l'indice RQD, mais sur des carottes de calibre AX au lieu de carottes de calibre NX.

### 3.2 Laboratoire

Les échantillons récupérés ont tous été transportés à notre laboratoire de Sept-Iles. Une description visuelle fut faite sur chacun d'eux et les plus représentatifs ont fait l'objet d'une analyse granulométrique. Tous les échantillons non utilisés seront conservés pour une période de six (6) mois à partir de la date de ce rapport. Par la suite, ils pourront être détruits à moins d'avis contraire d'un représentant autorisé de la Garde Côtière Canadienne.

Les résultats des essais de laboratoire sont présentés sous forme graphique à l'appendice 2.

#### 4.0 NATURE ET PROPRIETES DES MATERIAUX DE FONDATION

Les sondages ont permis d'identifier trois (3) types de matériaux différents, soit: la tourbe fibreuse de surface, un dépôt granulaire et le socle rocheux.

##### 4.1 Tourbe fibreuse

Le dépôt le plus récent est constitué de tourbe fibreuse, brun foncé. L'épaisseur de cette couche varie entre 0,30 mètre en F-1 et 1,6 mètre au droit de F-5.

Le contact de cet horizon avec celui sous-jacent se situe entre les élévations 8,52 mètres et 9,00 mètres, sauf pour les forages F-1 et F-7 où il se situe aux élévations 9,6 mètres et 9,8 mètres respectivement.

La superficie de la tourbière est facilement visible sur la photographie aérienne agrandie, présentée sur le dessin 3440-1 et les photographies en annexe.

#### 4.2 Dépôt granulaire

Le mort-terrain minéral que l'on retrouve sur le site est constitué de gravier sablonneux contenant un peu de silt. Son épaisseur très faible sous la tourbière augmente en se dirigeant vers le rivage. Au droit du forage F-7, elle atteint plus de deux (2) mètres.

La compacité de ce dépôt varie de lâche à moyenne.

#### 4.3 Socle rocheux

Le socle rocheux carotté à la base de tous les forages est constitué de calcaire interstratifié horizontalement, de minces lits schisteux. L'épaisseur des strates calcaireuses varie généralement entre 5 centimètres et 10 centimètres. Les strates schisteuses ont moins de un (1) cm d'épaisseur. Le seul système de diaclases observé correspond au litage subhorizontal de ces formations d'âge ordovicien.

Bien que le calibre des échantillons soit de diamètre réduit, l'examen de ceux-ci permet de constater que la partie supérieure du socle rocheux est très fracturée.

#### 4.4 Sources potentielles de granulats

Un (1) échantillon représentatif, prélevé dans le talus à proximité du forage F-7, a été soumis à une analyse granulométrique. Ce matériau dont la courbe granulométrique est présentée à l'appendice 3, contient trop d'éléments fins pour la fabrication du béton de ciment.

Un second échantillon de gravier, prélevé sur la place à environ un (1) kilomètre au nord du site, fut également soumis à une analyse granulométrique. La courbe présentée à l'appendice 3 indique qu'il s'agit d'un gravier dont la partie sable a été lavée. Ce matériau d'origine calcaire est essentiellement formé de particules très arrondies.



## 5.0 EAU SOUTERRAINE

Le niveau d'eau souterraine a été observé à des profondeurs variant de 0,00 mètre à 1,67 mètre, soit entre les élévations 8,27 mètres et 10,22 mètres, au matin (7:00 hres) du 12 octobre 1984.

On remarque un abaissement du niveau de l'eau souterraine au fur et à mesure que l'on se rapproche du bord de la mer. Il est important de mentionner que le niveau de l'eau souterraine peut fluctuer avec les saisons et les conditions climatiques.

## 6.0 COMMENTAIRES ET RECOMMANDATIONS

### 6.1 Données de base

La tour de communications projetée aura une hauteur de 125 mètres. La fondation de la tour devra pouvoir résister à une force verticale de 1429 kN ainsi qu'à une force horizontale de 24 kN. Il est à noter que ces charges de calcul contiennent déjà les surcharges atmosphériques et sismiques.

Les haubans inférieurs feront un angle de  $38^{\circ}$  avec l'horizontal et chacun de ceux-ci doit pouvoir résister à une charge axiale de 459 kN.

Les haubans supérieurs feront un angle de  $44^{\circ}$  avec l'horizontal et chacun de ceux-ci doit pouvoir résister à une charge axiale de 534 kN.

### 6.2 Fondations de la tour

Compte tenu de la faible épaisseur du mort-terrain et de la nature de ce dernier, il est recommandé de construire la tour sur une semelle directement appuyée sur le roc.

Toute l'emprise de la semelle devra être excavée jusqu'au socle rocheux. La surface de roc devra être soigneusement nettoyée et débarrassée de tout roc friable ou altéré. Ce travail devra être fait manuellement en utilisant une barre d'acier.

La capacité portante du socle rocheux ainsi nettoyée, est évaluée à 500 kPa.

### 6.3 Ancrages des haubans

Compte tenu de la faible épaisseur du mort-terrain et de la nature de ce dernier, il est recommandé d'ancrer les haubans dans le socle rocheux.

Les forages devront avoir un diamètre minimum de 89 mm (calibre NX) et une longueur d'au moins 6,0 mètres.

Les forages devront être soigneusement nettoyés avec un jet d'air comprimé et/ou un jet d'eau sous pression avant l'installation des ancrages.

Les tiges d'ancrage devront faire l'objet d'un nettoyage très minutieux avant leur installation dans les forages. Ces tiges devront avoir une surface crenelée ou devront être munies d'aspérités.

Un coulis expansif à haute résistance (50 MPa) devra être injecter de bas en haut sur toute la longueur des forages.

Après que le coulis aura fait prise, un essai d'arrachement à 130% de la charge de calcul devra être fait sur deux (2) des ancra- ges, soit une charge de 600 kN pour un des haubans inférieurs et une charge de 700 kN pour un des haubans supérieurs.

Une gaine protectrice de matière plastique devra être installée sur chacun des haubans entre la surface supérieure du roc jusqu'à un (1) mètre au-dessus du niveau du terrain. Afin de protéger la tige d'ancrage, l'espace annulaire entre celle-ci et la gaine pour- ra également être rempli de coulis. Cette gaine protégera les haubans contre la corrosion dans le mort-terrain.

C O G E M A T Inc.



Ronald Guillemette, ing.

RG:LL/fb



Louis Langevin, ing. M.Sc.

COGEMAT 1960

APPENDICE 1  
RAPPORTS DE FORAGE  
(F-1 à F-7 )

# NOTE EXPLICATIVE SUR LES RAPPORTS DE FORAGE

## COUPE GÉOLOGIQUE

## SYMBOLES DE LA STRATIGRAPHIE

### ÉLEVATION

LES ÉLEVATIONS DES CONTACTS DES DIVERSES COUCHES SONT RATTACHÉES AU NIVEAU DE RÉFÉRENCE IDENTIFIÉ À L'EN-TÊTE DU RAPPORT DE FORAGE.



SABLE



GRAVIER



CAILLOUX ET BLOCS



ROC

### DESCRIPTION ET CARACTÉRISTIQUES

CHACQUE COUCHE DU TERRAIN EST DÉCRITE SELON LA TERMINOLOGIE D'USAGE. LA PROPORTION DES ÉLÉMENTS CONSTITUANT LES SOLS DES DIVERSES COUCHES EST DONNÉE EN ACCORD AVEC LES TERMES DESCRIPTIFS ÉNUMÉRÉS PLUS BAS. LA COMPACITÉ RELATIVE DES SOLS PULVÉREUXS EST DÉFINIE PAR LA VALEUR DE L'INDICE DE PÉNÉTRATION STANDARD ET LA CONSISTANCE DES SOLS COHÉRENTS PAR LA RÉSISTANCE AU CISAILEMENT À L'ÉTAT NON-REMANIÉ.



SILT



ARGILE



SOL ORGANIQUE



NIVEAU D

### EAU

LE NIVEAU D'EAU OBSERVÉ EST INDICUÉ SUR LA PARTIE QUADRILLÉE DU RAPPORT DE FORAGE, AVEC LA DATE DU RELEVÉ.

### ÉCHANTILLONS



INTACT



REMANIÉ



PERDU



CAROTTE

### CLASSIFICATION (CLASSIFICATION UNIFIÉE)

FINES	PASSANT No 200
SABLE	TAMIS No 4 AU No 200
GRAVIER	3 Po AU TAMIS No 4
CAILLOUX	3 Po A 8 Po
BLOCS	> 8 Po

### TERMINOLOGIE (BURMISTER)

"TRACES"	< 10%
"UN PEU"	10 - 20%
ADJECTIF (SILTEUX, SABLONNEUX)	20 - 35%
"ET"	35 - 50%

### COMPACITÉ RELATIVE

### INDICE DE PÉNÉTRATION STANDARD (N COUPS/PI)

TRÈS LÂCHE	0 - 4
LÂCHE	4 - 10
MOYENNE OU COMPACTE	10 - 30
DENSE	30 - 50
TRÈS DENSE	> 50

### CONSISTANCE DES SOLS COHÉRENTS

### RÉSISTANCE AU CISAILEMENT

	(lbs/pi <sup>2</sup> )	(kPa)
TRÈS MOLLE	250	12
MOLLE	250 - 500	12 - 25
MOYENNE OU FERME	500 - 1000	25 - 50
RAIDE	1000 - 2000	50 - 100
TRÈS RAIDE	2000 - 4000	100 - 200
DURE	> 4000	> 200

### LIMITES DE CONSISTANCE

Plasticité	Limite liquide (%)
FAIBLE	< 30
MOYENNE	30 - 50
FORTE	> 50

### ÉTAT

L'ÉTAT DE L'ÉCHANTILLON EST INDICUÉ DANS LE RAPPORT D'EXPLORATION SELON LE SYMBOLE CI-DESSUS.

### TYPE ET NUMÉRO

LE TYPE D'ÉCHANTILLON OU D'ESSAI EST DÉFINI PAR L'ABRÉVIATION INDICUÉE AU HAUT DU RAPPORT DU FORAGE ET LA NUMÉRATION E CONTINUE POUR CHACUN DES TYPES.

### RÉCUPÉRATION

LA RÉCUPÉRATION DE L'ÉCHANTILLON EST LE RAPPORT EXPRIMÉ EN POURCENTAGE DE LA LONGUEUR DE SOL RÉCUPÉRÉ DANS LE CAROTTIER, APRÈS EXTRACTION, À LA LONGUEUR D'ENFONCEMENT CELUI-CI LA LONGUEUR RÉCUPÉRÉE PEUT AUSSI SE MESURER DEPUIS LE SOMMET DE L'ÉCHANTILLON JUSQU'À TROUSSE COUPÉE DU CAROTTIER, QUE LA PARTIE INFÉRIEURE DE L'ÉCHANTILLON SOIT PERDUE OU NON.

### RÉSULTAT

L'ESSAI EST IDENTIFIÉ SUR LE RAPPORT DE FORAGE AU NIVEAU D'ÉCHANTILLON EN UTILISANT LES SYMBOLES DÉFINIS SUR LA FORMULE DU RAPPORT. LES RÉSULTATS DES ESSAIS EFFECTUÉS SUR LE CHANTIER OU EN LABORATOIRE SONT INDICUÉS SUR LA FORMULE.

### NOTES

LES OBSERVATIONS RELEVÉES DURANT LE FORAGE ET L'EXAMEN DES ÉCHANTILLONS APPARAISSENT DANS LE RAPPORT DE FORAGE. LES RÉSULTATS Y SONT ÉGALEMENT PORTÉS SOUS FORME DE GRAPHIQUE TELS ENTRE AUTRES: LES TENEURS EN EAU, LES LIMITES DE CONSISTANCE, LA RÉSISTANCE AU CISAILEMENT NON-DRAÏNÉ, L'ESSAI DE PÉNÉTRATION DYNAMIQUE À LA POINTE CONIQUE AIN QUE LA PÉNÉTRATION DU CAISSON.

COGEMAT inc.





COGEMAT

## RAPPORT DE FORAGE

Page 1 de 1  
 Forage No F-1  
 Date du forage : 84/10/6-7  
 Date du rapport : Octobre 1984  
 Marleau : messe  
 chute : 76 cm

Projet : Tour de Communication VHF  
 Lieu : Heath Point, Anticosti  
 Niveau de référence :

Projet no : 3440  
 BW  
 Tubage :

ÉCHANTILLONNAGE ET ESSAIS AU CHANTIER						ESSAIS EN LABORATOIRE		
<b>TYPES D'ÉCHANTILLONS :</b> SS : CUILLÈRE FENDUE STD, 51mm dia ST : TUBE SHELBY, dia PS : ÉCHANTILLONNEUR À PISTON, AXT dia DC : CAROTTIER À DIAMANTS, CALIBRE WS : ÉCHANTILLON DE LAVAGE AS : ÉCHANTILLON À LA TARIÈRE			<b>TYPES D'ESSAIS :</b> VT : SCISSIONNÈTRE, dia PT : PÉNÉTROMÈTRE, dia PM : PRESSIOMÈTRE MÉNARD, dia <b>RÉSULTATS D'ESSAIS</b> N : INDICE DE PÉNÉTRATION STD (COUPS/0.3m) k : PERMEABILITÉ (cm/s) CU : CISAILEMENT SUR SOL INTACT (1Pa) CJ : CISAILEMENT SUR SOL REMANIÉ (1Pa) PL : PRESSION LIMITE (1Pa) E : MODULE DE DÉFORMATION (1Pa) WL : NIVEAU PHRÉATIQUE			<b>AG :</b> ANALYSE GRANULOMÉTRIQUE <b>γ</b> : POIDS UNITAIRE HUMIDE (kN/m³) <b>U :</b> COMPRESSION SIMPLE (1Pa) <b>Q :</b> TRIAXIAL MC ND (1Pa) <b>(%) :</b> DÉFORMATION À LA RUPTURE <b>VL :</b> SCISSIONNÈTRE DE LABORATOIRE <b>C :</b> CONSOLIDATION <b>— :</b> LIMITE DE PLASTICITÉ (%) <b>● :</b> TENEUR EN EAU NATURELLE (%) <b>— :</b> LIMITE DE LIQUIDITÉ (%)		
<b>ÉTAT DE L'ÉCHANTILLON :</b>  REMANIÉ  BDN  PERDU  CAROTTE								
COUPE GÉOLOGIQUE				Échantillons et essais		Résultats d'essais	Notes	
ÉLEV. m.	PROF m pi	DESCRIPTION	Siret	Eau	Loc			Type & No
9,93	c	SURFACE DU TERRAIN						
9,60		Sol organique noir fibreux			X	SS-1	39	N= 9
	1	Gravier sablonneux, un peu de silt compacité lâche à moyenne.			X	SS-2	33	N= 17 AG
8,42	5					DC-3	100	RQD'=0
	2	Socle rocheux: Calcaire interstratifié horizontalement de minces lits schisteux. Nombreuses diaclases, très fracturé jusqu'à 2 mètres				DC-4	85	RQD'=0
						DC-5	100	RQD'=25
6,73	10					DC-6	100	RQD'=50
		Fin du forage à 3,2m						

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## RAPPORT DE FORAGE

Projet: Tour de Communication VHF  
 Lieu: Heath Point, Anticosti  
 Niveau de référence: Arbitraire

Projet no: 3440

Tubage: 20

Page 1 de 1  
 Forage No: F-2  
 Date du forage: 84/10/7  
 Date du rapport: Octobre 1984  
 Marteau: masse 63,5 kg  
 chute 76 cm

## ÉCHANTILLONNAGE ET ESSAIS AU CHANTIER

## TYPES D'ÉCHANTILLONS:

SS : CUILLÈRE FENDUE STD, 51mm dia  
 ST : TUBE SHELBY, dia  
 PS : ÉCHANTILLONNEUR À PISTON, dia  
 DC : CAROTTIER À DIAMANTS, CALIBRE AXT  
 WS : ÉCHANTILLON DE LAVAGE  
 AS : ÉCHANTILLON À LA TARIÈRE

## ÉTAT DE L'ÉCHANTILLON:

REMANIÉ BDN PERDU CAROTTE

## TYPES D'ESSAIS:

VT : SCSOMÈTRE, dia  
 PT : PÉNÉTROMÈTRE, dia  
 PM : PRESSIOMÈTRE MÉNARD, dia

## RÉSULTATS D'ESSAIS

N : INDICE DE PÉNÉTRATION STD (COUPS/0.3m)  
 K : PERMÉABILITÉ (cm/s)  
 CU : CISAILLEMENT SUR SOL INTACT (1Pa)  
 CUr : CISAILLEMENT SUR SOL REMANIÉ (1Pa)  
 PL : PRESSION LIMITE (1Pa)  
 E : MODULE DE DÉFORMATION (1Pa)  
 WL : NIVEAU PHRÉATIQUE

## ESSAIS EN LABORATOIRE

AG : ANALYSE GRANULOMÉTRIQUE  
 γ : POIDS UNITAIRE HUMIDE (kN/m³)  
 U : COMPRESSION SIMPLE (1Pa)  
 Q : TRIAXIAL NC ND (1Pa)  
 (%) : DÉFORMATION À LA RUPTURE  
 VL : SCSOMÈTRE DE LABORATOIRE  
 C : CONSOLIDATION  
 — : LIMITE DE PLASTICITÉ (%)  
 ● : TENEUR EN EAU NATURELLE (%)  
 — : LIMITE DE LIQUIDITÉ (%)

## COUPE GÉOLOGIQUE

ELEV m,	PROF m pi	DESCRIPTION	Strat	Eou	Échantillons et essais			Résultats d'essais	Notes
					Loc	Type B No	Réc (%)		
9,45	0	SURFACE DU TERRAIN							
		Sol organique noir, fibreuse avec par- tie plus fine à la base. (silt, argile)				SS-1	33	N = 1	(PL: Elevation 9,73m 84/10/12)
8,35	1	Gravier sablonneux et silteux				SS-2	83	N = 87/15cm	
						DC-3	63	RQD' = 0	
	5	Socle rocheux; calcaire interstra- tifié horizontale- ment de minces lits schisteux, nombreu- ses diaclases hori- zontales, très frac- turé jusqu'à 2,4 mètres				DC-4	98	RQD' = 0	
	2					DC-5	100	RQD' = 20	
6,65						DC-6	100	RQD' = 0	
	10	Fin du forage à 2,8m							



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## RAPPORT DE FORAGE

Projet: Tour de Communication VHF  
 Lieu: Heath Point, Anticosti  
 Niveau de référence: Arbitraire

Projet no: 3440

Tubage: BW

Page 1 de 1  
 Forage No: F-3  
 Date du forage: 84/10/8  
 Date du rapport: Octobre 84  
 Marteau: masse 63,5 kg  
 chute 76 cm

## ÉCHANTILLONNAGE ET ESSAIS AU CHANTIER

## ESSAIS EN LABORATOIRE

## TYPES D'ÉCHANTILLONS:

SS: CUILLÈRE FENDUE STD, 51mm dia  
 ST: TUBE SHELBY, dia  
 PS: ÉCHANTILLONNEUR À PISTON, dia  
 DC: CAROTTIER À DIAMANTS, CALIBRE  
 WS: ÉCHANTILLON DE LAVAGE  
 AS: ÉCHANTILLON À LA TARIÈRE

## ÉTAT DE L'ÉCHANTILLON.



REMANIÉ

80%

PERDU

CAROTTE

## TYPES D'ESSAIS:

VT: SCSOMÈTRE, dia  
 PT: PÉNÉTROMÈTRE, dia  
 PM: PRESSIOMÈTRE MÉNARD, dia

## RÉSULTATS D'ESSAIS

N: INDICE DE PÉNÉTRATION STD (COUPS/0,3m)  
 K: PERMEABILITÉ (cm/s)  
 CU: CISAILEMENT SUR SOL INTACT (kPa)  
 CUI: CISAILEMENT SUR SOL REMANIÉ (kPa)  
 PL: PRESSION LIMITE (kPa)  
 E: MODULE DE DÉFORMATION (kPa)  
 WL: NIVEAU PHRÉATIQUE

AG: ANALYSE GRANULOMÉTRIQUE  
 γ: POIDS UNITAIRE HUMIDE (kN/m³)  
 U: COMPRESSION SIMPLE (kPa)  
 Q: TRIAXIAL NC ND (kPa)  
 (%): DÉFORMATION À LA RUPTURE  
 VL: SCSOMÈTRE DE LABORATOIRE  
 C: CONSOLIDATION  
 —: LIMITE DE PLASTICITÉ (%)  
 ●: TENEUR EN EAU NATURELLE (%)  
 —: LIMITE DE LIQUIDITÉ (%)

## COUPE GÉOLOGIQUE

## Échantillons et essais

## Résultats d'essais

## Notes

ELEV. m	PROF. m	DESCRIPTION	Strat.	Eau	Loc.	Type & No.	Réc. (%)	d'essais	Notes
10,22	0	SURFACE DU TERRAIN							
		Sol organique noir, fibreux							WL: Elevation 10,22m (84/10/12)
8,85	1								
	5	Socle rocheux: Calcaire interstratifié, horizontalement de minces lits schisteux. Nombreuses diaclases horizontales, très fracturé jusqu'à 2,2 mètres				DC-1	44	RQD'=0	
	2					DC-2	64	RQD'=0	
						DC-3	98	RQD'=20	
						DC-4	100	RQD'=20	
7,00	1					DC-5	71	RQD'=38	
		Fin du forage à 3,22m							

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## RAPPORT DE FORAGE

Page 1 de 1  
 Forage No. F-4  
 Date du forage : 84/10/9  
 Date du rapport : Octobre 84  
 Marleau : masse 63,5 kg  
 chute : 76 cm

Projet : Tour de Communication VHF  
 Lieu : Heath Point, Anticosti  
 Niveau de référence : Arbitraire

Projet no : 3440

Tubage : BW

ÉCHANTILLONNAGE ET ESSAIS AU CHANTIER					ESSAIS EN LABORATOIRE				
<b>TYPES D'ÉCHANTILLONS :</b> SS : CUILLÈRE FENDUE STD, 51mm dia. ST : TUBE SHELBY, ... dia. PS : ÉCHANTILLONNEUR À PISTON, ... dia. DC : CAROTTIER À DIAMANTS, CALIBRE AXI WS : ÉCHANTILLON DE LAVAGE AS : ÉCHANTILLON À LA TARIÈRE			<b>TYPES D'ESSAIS :</b> VT : SCISSIONNÈTRE, ... dia. PT : PÉNÉTROMÈTRE, ... dia. PM : PRESSIOMÈTRE MÉNARD, ... dia. <b>RÉSULTATS D'ESSAIS</b> N : INDICE DE PÉNÉTRATION STD (COUPS/0.3m) k : PERMEABILITÉ (cm/s) CU : CISAILEMENT SUR SOL INTACT (kPa) CUr : CISAILEMENT SUR SOL REMANIÉ (kPa) PL : PRESSION LIMITE (kPa) E : MODULE DE DÉFORMATION (kPa) WL : NIVEAU PHRÉATIQUE						
<b>ÉTAT DE L'ÉCHANTILLON :</b>  REMANIÉ  BON  PERDU  CAROTTE									
COUPE GÉOLOGIQUE				Échantillons et essais		Notes			
ELEV. m	PROF. m pi	DESCRIPTION	Strat	Eau	Loc.		Type & No.	Réc (%)	Résultats d'essais
10,20	0	SURFACE DU TERRAIN							
		Sol organique noir, fibreux							
8,83	5	Socle rocheux; calcaire interstratifié horizontalement de minces lits schisteux, nombreuses diaclases horizontales, très fracturés jusqu'à 2,6 mètres				DC-1	44	RQD' = 0	
	2					DC-2	71	RQD' = 0	
						DC-3	100	RQD' = 0	
	5					DC-4	100	RQD' = 0	
6,82	10					DC-5	100	RQD' = 44	
		Fin du forage à 3,38m							

COGEMAT





## RAPPORT DE FORAGE

Projet: Tour de Communication VHF  
 Lieu: Heath Point, Anticosti  
 Niveau de référence: Arbitraire

Projet no: 3440

Tubage: BW

Page 1 de 1  
 Forage no: F-5  
 Date du forage: 84/10/9  
 Date du rapport: Octobre 84  
 Marteau: masse 63,5 kg  
 chute 76 cm

ÉCHANTILLONNAGE ET ESSAIS AU CHANTIER						ESSAIS EN LABORATOIRE	
<b>TYPES D'ÉCHANTILLONS:</b> SS : CUILLÈRE FENDUE STD. 51mm dia ST : TUBE SHELBY, dia PS : ÉCHANTILLONNEUR À PISTON, dia DC : CAROTTIER À DIAMANTS, CALIBRE AXT WS : ÉCHANTILLON DE LAVAGE AS : ÉCHANTILLON À LA TARIÈRE			<b>TYPES D'ESSAIS:</b> VT : SCSOMÈTRE, dia PT : PÉNÉTROMÈTRE, dia PM : PRESSIOMÈTRE MÉNARD, dia <b>RÉSULTATS D'ESSAIS</b> N : INDICE DE PÉNÉTRATION STD (COUPS/0.3m) K : PERMEABILITÉ (cm/s) CU : CISAILEMENT SUR SOL INTACT (kPa) C <sub>u</sub> : CISAILEMENT SUR SOL REMANIÉ (kPa) PL : PRESSION LIMITE (kPa) E : MODULE DE DÉFORMATION (kPa) WL : NIVEAU PHRÉATIQUE			AG : ANALYSE GRANULOMÉTRIQUE Y : POIDS UNITAIRE HUMIDE (kN/m³) U : COMPRESSION SIMPLE (kPa) Q : TRIAXIAL H C H C (kPa) (%): DÉFORMATION À LA RUPTURE VL : SCSOMÈTRE DE LABORATOIRE C : CONSOLIDATION — : LIMITE DE PLASTICITÉ (%) ● : TENEUR EN EAU NATURELLE (%) — : LIMITE DE LIQUIDITÉ (%)	
<b>ÉTAT DE L'ÉCHANTILLON:</b>  REMANIÉ  BON  PERDU  CAROTTE							
COUPE GÉOLOGIQUE				Echantillons et essais		Résultats	
ÉLEV. m	PROF. m	DESCRIPTION	Strat.	Loc	Type & No	Réc (%)	d'essais
10,28	0	SURFACE DU TERRAIN					
	1	Sol organique, noir fibreux					
8,63	2	Socle rocheux; calcaire interstratifié horizontalement de minces lits schisteux, nombreuses diaclases horizontales, très fracturé jusqu'à 2,2m			DC-1 50 DC-2 63 DC-3 86	RQD'=0 RQD'=0 RQD'=0	
6,55	4	Fin du forage à 3,73m					



COGEMAT

## RAPPORT DE FORAGE

Projet: Tour de Communication VHF  
 Lieu: Heath Point, Anticosti  
 Niveau de référence: Arbitraire

Projet no: 3440

Tubage: BW

Page 1 de 1  
 Forage No: F-6  
 Date du forage: 84/10/10  
 Date du rapport: Octobre 84  
 Marleau: masse 63,5 kg  
 chute: 76 cm

## ÉCHANTILLONNAGE ET ESSAIS AU CHANTIER

## ESSAIS EN LABORATOIRE

## TYPES D'ÉCHANTILLONS:

SS: CUILLÈRE FENDUE STD, 51mm dia  
 ST: TUBE SHELBY, dia  
 PS: ÉCHANTILLONNEUR À PISTON, dia  
 DC: CAROTTIER À DIAMANTS, CALIBRE AXT  
 WS: ÉCHANTILLON DE LAVAGE  
 AS: ÉCHANTILLON À LA TARIÈRE

## TYPES D'ESSAIS:

VT: SCISSOMÈTRE, dia  
 PT: PÉNÉTROMÈTRE, dia  
 PM: PRESSIOMÈTRE MÉHARD, dia

## RÉSULTATS D'ESSAIS

N: INDICE DE PÉNÉTRATION STD (COUPS/0,3m)  
 k: PERMÉABILITÉ (cm/s)  
 CU: CISAILEMENT SUR SOL INTACT (kPa)  
 QU: CISAILEMENT SUR SOL REMANIÉ (kPa)  
 PL: PRESSION LIMITE (kPa)  
 E: MODULE DE DÉFORMATION (kPa)  
 WL: NIVEAU PHRÉATIQUE

## ÉTAT DE L'ÉCHANTILLON:

REMANIÉ BON PERDU CAROTTE

AG: ANALYSE GRANULOMÉTRIQUE  
 Y: POIDS UNITAIRE HUMIDE (kN/m³)  
 U: COMPRESSION SIMPLE (kPa)  
 Q: TRIAXIAL NC ND (kPa)  
 (%): DÉFORMATION À LA RUPTURE  
 VL: SCISSOMÈTRE DE LABORATOIRE  
 C: CONSOLIDATION  
 L: LIMITE DE PLASTICITÉ (%)  
 ●: TENEUR EN EAU NATURELLE (%)  
 L: LIMITE DE LIQUIDITÉ (%)

## COUPE GÉOLOGIQUE

## Échantillons et essais

## Résultats d'essais

## Notes

ELEV. m.	PROF. m pi	DESCRIPTION	Strat	Eau	Loc.	Type & No.	Réc (%)		
9,25	0	SURFACE DU TERRAIN							
		Sol organique noir, fibreux				SS-1	11	N=2	
8,70	1								
8,41	5	Gravier sablonneux un peu de silt							
	2	Socle rocheux: calcaire interstratifié horizontalement de minces lits schisteux, nombreuses diaclases horizontales, très fracturé jusqu'à 2,5 mètres				DC-2	98	RQD'=0	
						DC-3	91	RQD'=0	
6,90	3					DC-4	100	RQD'=0	
		Fin du forage à 3,05m							

WL: Elevation 9,30,  
 (84/10/12)

COGEMAT

## RAPPORT DE FORAGE

Projet: Tour de Communication  
 Lieu: Heath Point, Anticosti  
 Niveau de référence: Arbitraire

Projet no: 3440

Tubage: BW

Page 1 de 1

Forage No.

Date du forage 67/10/10-11

Date du rapport Octobre 84

Marteau: mass 63,5

chute 76

kg  
cm

## ÉCHANTILLONNAGE ET ESSAIS AU CHANTIER

## ESSAIS EN LABORATOIRE

## TYPES D'ÉCHANTILLONS:

SS: CUILLÈRE FENDUE STD, 51mm dia  
 ST: TUBE SHELBY, dia  
 PS: ÉCHANTILLONNEUR À PISTON, AXI  
 DC: CAROTTIER À DIAMANTS, CALIBRE  
 WS: ÉCHANTILLON DE LAVAGE  
 AS: ÉCHANTILLON À LA TARIÈRE

## TYPES D'ESSAIS:

VT: SCSOMÈTRE, dia  
 PT: PÉNÉTROMÈTRE, dia  
 PM: PRESSIOMÈTRE MÉNARD, dia

## RÉSULTATS D'ESSAIS

N: INDICE DE PÉNÉTRATION STD (COUPS/0,3m)  
 k: PERMÉABILITÉ (cm/s)  
 CU: CISAILEMENT SUR SOL INTACT (kPa)  
 C<sub>u</sub>: CISAILEMENT SUR SOL REMANIÉ (kPa)  
 PL: PRESSION LIMITE (kPa)  
 E: MODULE DE DÉFORMATION (kPa)  
 WL: NIVEAU PHRÉATIQUE

## ÉTAT DE L'ÉCHANTILLON:

REMANIÉ BON PERDU CAROTTE

AG: ANALYSE GRANULOMÉTRIQUE  
 γ: POIDS UNITAIRE HUMIDE (kN/m³)  
 U: COMPRESSION SIMPLE (kPa)  
 Q: TRIAXIAL N.C.N.D. (kPa)  
 (%): DÉFORMATION À LA RUPTURE  
 VL: SCSOMÈTRE DE LABORATOIRE  
 C: CONSOLIDATION  
 —: LIMITE DE PLASTICITÉ (%)  
 ●: TENEUR EN EAU NATURELLE (%)  
 —: LIMITE DE LIQUIDITÉ (%)

## COUPE GÉOLOGIQUE

## Échantillons et essais

## Résultats

## Notes

ELEV m,	PROF m pi.	DESCRIPTION	Siral	Eou	Ldc	Type B No	Réc. (%)	d'essais	Notes
9,94	c o	SURFACE DU TERRAIN							
9,79		Sol organique noir fibreuse				SS-1	44	N=10	
		Gravier sablonneux, un peu de silt, trace de cailloux, lâche à compact				SS-2	22	N=8	
						SS-3	56	N=18 AG	ML: Elevation 18,27m (83/10/12)
7,69		Socle rocheux: Calcaire interstra- tifié horizontale- ment de minces lits schisteux.				DC-4	70	RQD'=0	
		Nombreuses diacla- ses horizontales, très fracturé jus- qu'à 2,8 mètres				DC-5	100	RQD'=20	
6,21						DC-6	100	RQD'=0	
		Fin du forage à 3,73m							

COGEMAT <sup>IN</sup>

APPENDICE 2

RESULTATS DES ESSAIS DE LABORATOIRE

(Forage F-1 à F-7)

COGEMAT INC

COURBE GRANULOMÉTRIQUE

PROJET : Tour de Communication VHF

ENDROIT : Heath Point, Anticosti

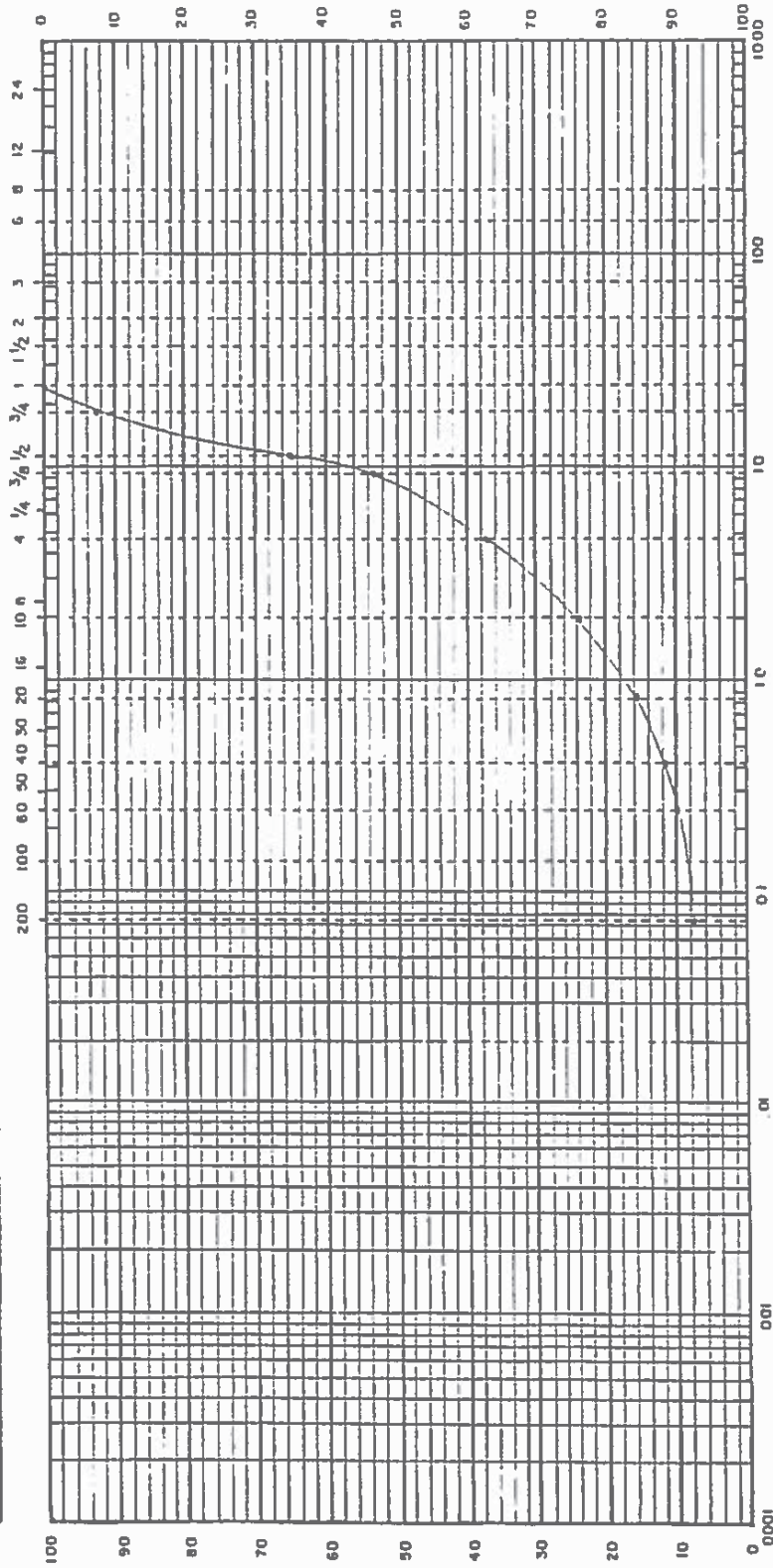
PROVENANCE : Forage F-1

DOSSIER No. : 3440 DATE : Octobre 1984

PROFONDEUR : 0,75-1,22m ÉCHANTILLON No. : SS-2

DESCRIPTION : Gravier sablonneux, trace de silt

SÉDIMENTATION									
No DES TAMIS (U.S.S.)					GROSSEUR DES TAMIS EN PO.				



CLASSIFICATION ASTM D 2487 (USCS)		DIAMÈTRE DES PARTICULES (mm)			
ARGILE OU SILT	SABLE	SABLE		GRAVIER	
		FIN	MOYEN	GROS	GROS

CLASSIFICATION MIT		DIAMÈTRE DES PARTICULES (mm)			
ARGILE	SILT	SABLE		GRAVIER	
		FIN	MOYEN	GROS	GROS

REMARQUES :

COGEMAT INC

COURBE GRANULOMÉTRIQUE

PROJET : Tour de Communication VHF

ENDROIT : Heath Point, Anticosti

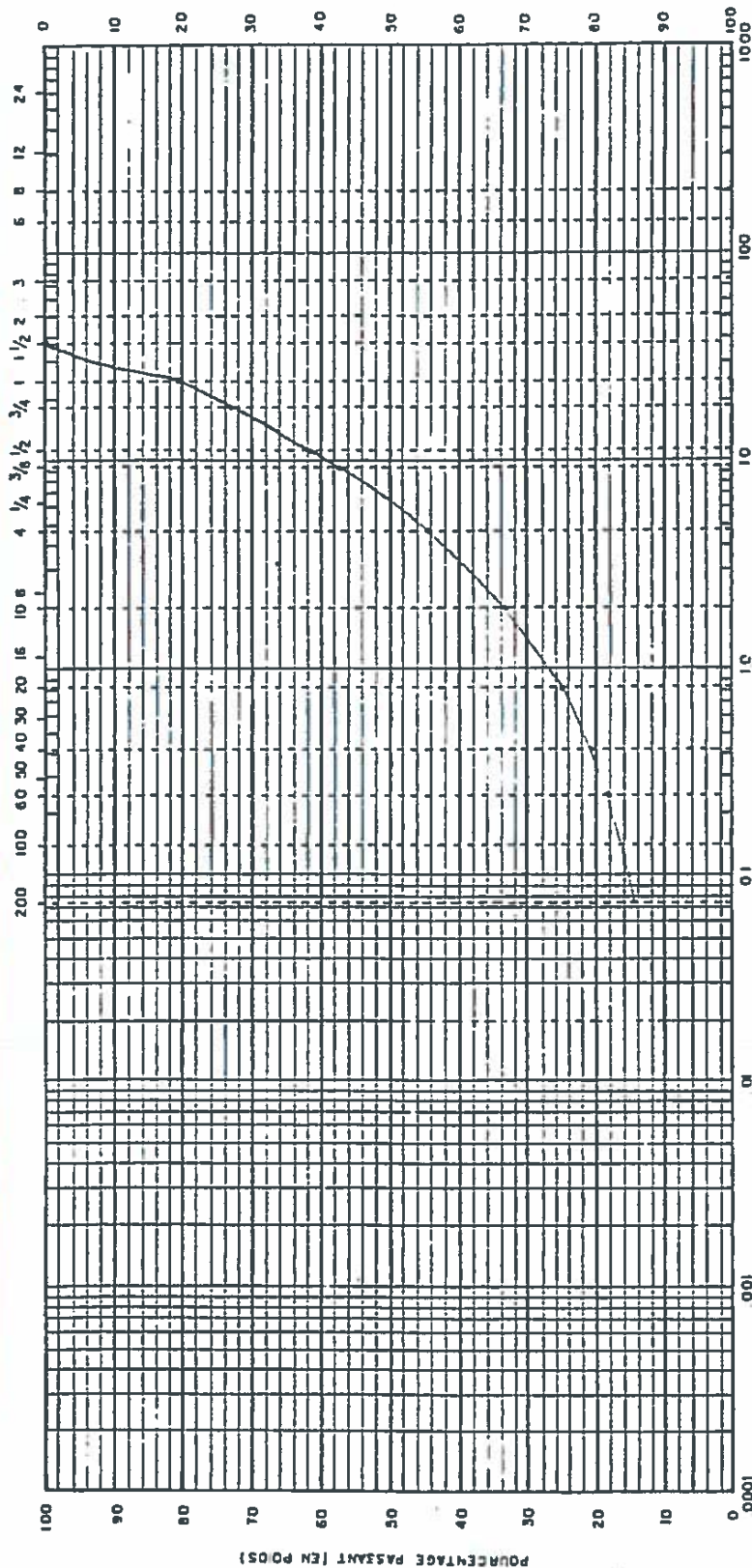
PROVENANCE : Forage F-7

DOSSIER No. : 3440 DATE : Octobre 1984

PROFONDEUR : 1,5-2m ÉCHANTILLON No. : SS-3

DESCRIPTION : Gravier sablonneux, un peu de silt

SÉDIMENTATION										GROSSEUR DES TAMIS EN PO.										
No. DES TAMIS (U.S.S.)																				
200	100	60	40	30	20	16	10.8	4	1/4	3/8	1/2	3/4	1	1 1/2	2	3	5	8	12	24



CLASSIFICATION ASTM D 2487 (USCS) ARGILE OU SILT

SABLE		GRAVIER		CAILLOUX		BLOCS	
FIN	MOYEN	FIN	MOYEN	FIN	MOYEN	FIN	MOYEN

CLASSIFICATION MIT

SABLE		GRAVIER		CAILLOUX		BLOCS	
FIN	MOYEN	FIN	MOYEN	FIN	MOYEN	FIN	MOYEN

REMARQUES :



COGEMAT

APPENDICE 3

RESULTATS DES ESSAIS DE LABORATOIRE

(Sources potentielles des granulats)

COGEMAT INC

COURBE GRANULOMÉTRIQUE

PROJET : Tour de Communication VHF

ENDROIT : Heath Point, Anticosti

PROVENANCE : Près forage F-7

DOSSIER No. : 3440

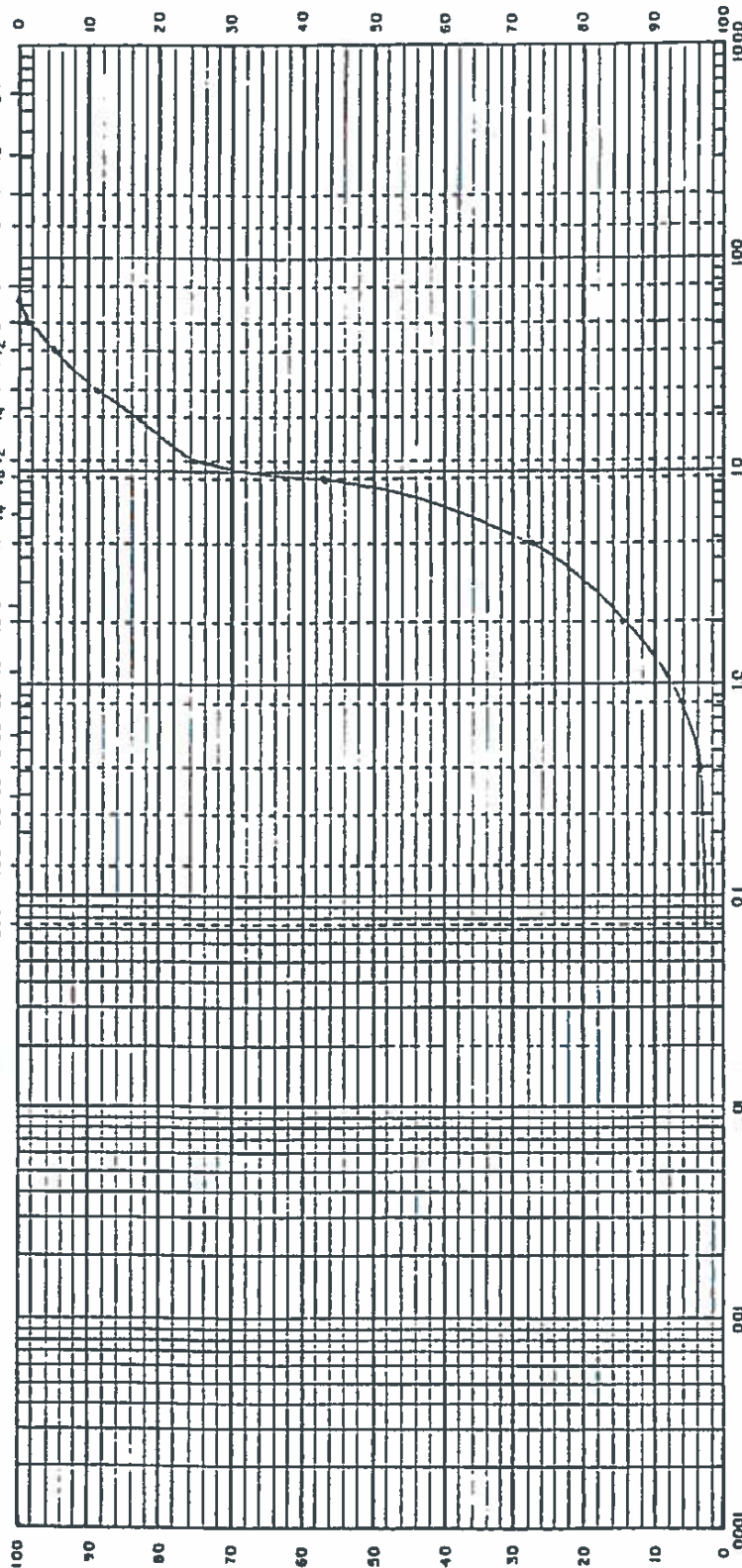
DATE : Octobre 1984

PROFONDEUR : Surface

ÉCHANTILLON No. : Ech. #1

DESCRIPTION : Gravier sablonneux, trace de silt

SÉDIMENTATION		No DES TAMIS (U.S.S.)		GROSSEUR DES TAMIS EN PO.	
---------------	--	-----------------------	--	---------------------------	--



CLASSIFICATION ASTM D 2487 (USCS)

ARGILE OU SILT		SABLE		GRAVIER		CAILLoux		BLOCS	
FIN	MOYEN	FIN	GROS	FIN	GROS	CAILLoux	BLOCS	CAILLoux	BLOCS

CLASSIFICATION MIT

ARGILE		SILT		GRAVIER		CAILLoux		BLOCS	
FIN	MOYEN	FIN	GROS	FIN	MOYEN	CAILLoux	BLOCS	CAILLoux	BLOCS

REMARQUES :

COGEMAT INC

COURBE GRANULOMÉTRIQUE

PROJET: Tour de Communication

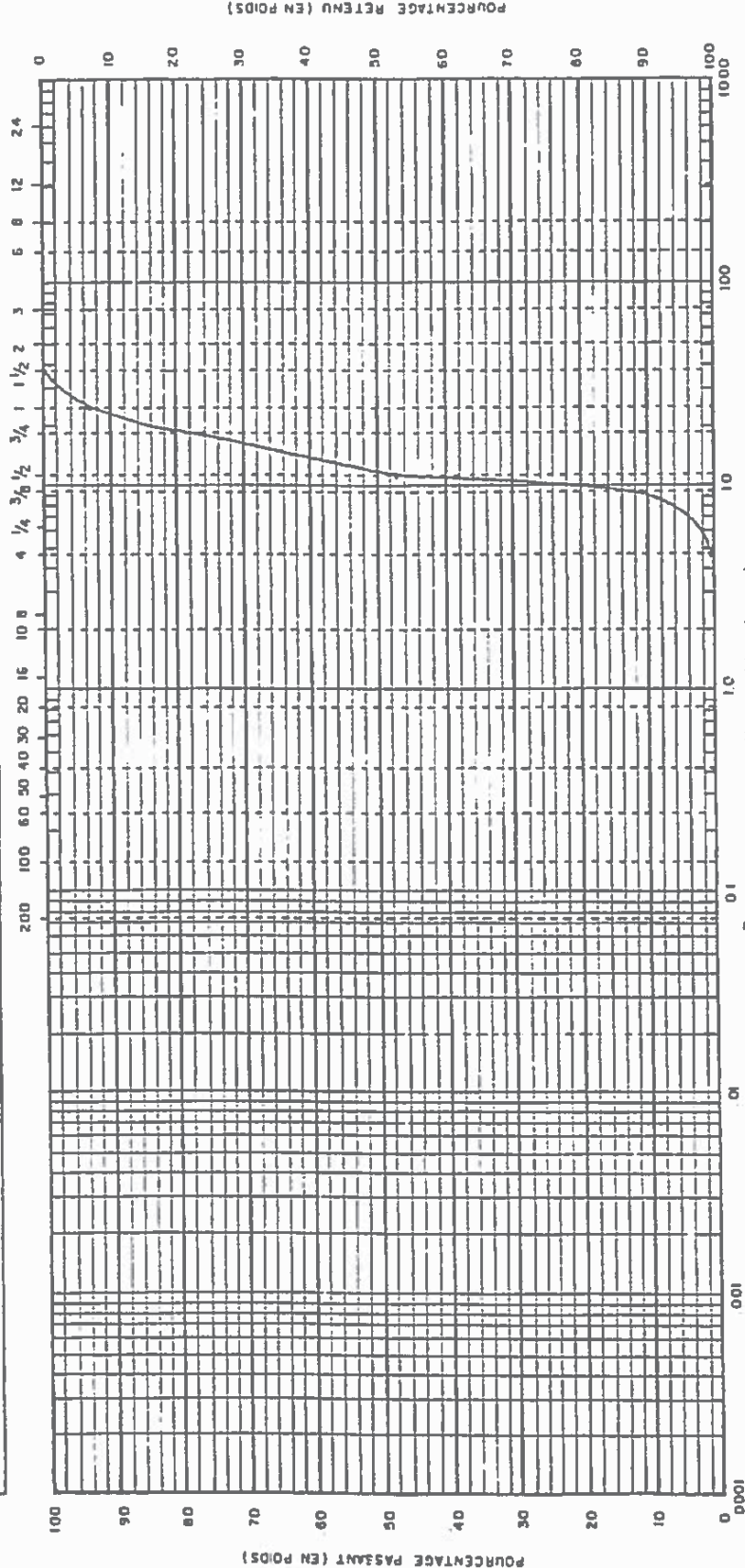
ENDROIT: Heath Point, Anticosti

DOSSIER No: 3440 DATE: Octobre 1984

PROVENANCE: Plage à environ 1km (emprunt)

PROFONDEUR Surface ÉCHANTILLON No: Ech. #2 DESCRIPTION: Gravier

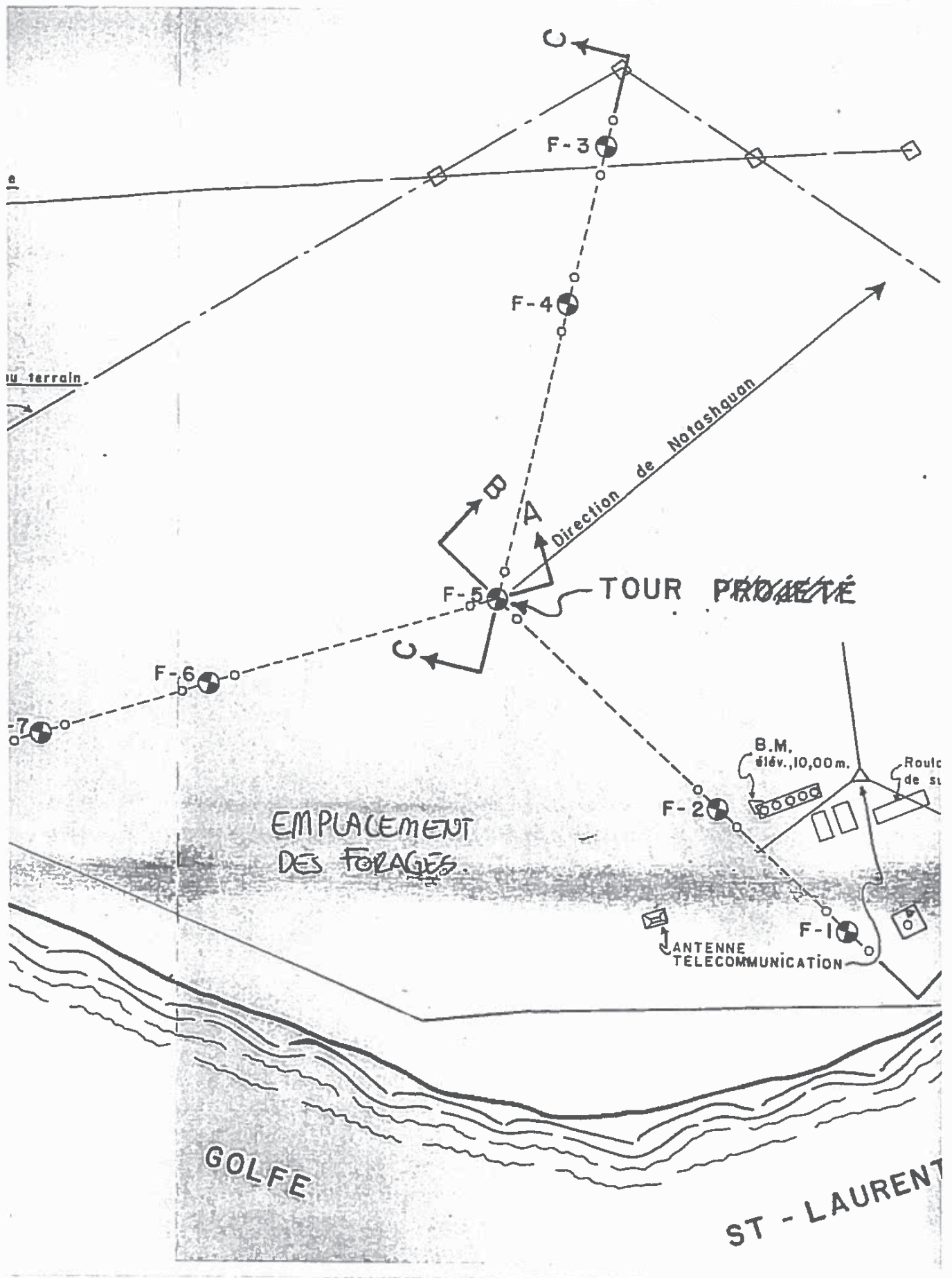
SÉDIMENTATION		No DES TAMIS (U.S.S.)		GROSSEUR DES TAMIS EN PO.	



COGEMAT

DESSIN #3440-1

Localisation des sondages et  
coupes stratigraphiques





The work under this contract consists of, but is not limited to. Some documents must be issued in both official languages. If no mention, the documents can be produced only in French. Finally, all drawings must strictly follow the CCG drawing standard.

1. Design and fabrication of two composite materials shelters (specifications and drawings be issued in both official languages). Validation of all openings is required by the CCG prior to the manufacture of the shelters.
2. Design and fabrication of three composite materials sheds, two of which have a containment basin. The specifications and drawings be issued in both official languages. ). Validation of all openings is required by the CCG prior to the manufacture of the sheds.
3. Design and fabrication of composite material goosenecks (11) and gantries.(6). A procedure shall be provided to the CCG representative to secure these delivered components separately from shelters and sheds to preserve their solidity and their waterproofing.
4. Composite material parts to make: parts for the existing cable tray, parts for guardrails and the extension of the gallery and of the walkway.
5. Supply and install the doors, windows, outlet exhausts (3), electrical raceway with uninsulated or insulated sleeves, cables entry, pipes entries and outlet for outdoor lights.
6. Design and construction of the temporary foundations for the two shelters and the three sheds. The height will be confirmed by CCG representative after the design of the shelters and sheds.
7. Design of the permanent foundations of the shelters and sheds (specifications and drawings be issued in both official languages). The height will be confirmed by CCG representative after the design of the shelters and sheds.
8. Supply composite material or stainless steel hardware and fasteners needed + 10%.
9. Installation of the electrical toilet and air exchanger furnished by CCG following the maker specifications and the contract drawings. The maker is responsible to supply any parts needed to complete the installation, except the electrical part.
10. Conduct the tightness tests for the two shelters with a specialised company paid by the maker. For the test, consider that a NOVEC1230 will be installed. Give a copy of the French report to the CCG representative.
11. Preparation and handling of shelters, sheds and accessories for transportation to the CCG site. No assets, materials should be put directly on the ground: supply temporary foundations and palettes needed. The maker has to respect the comments from the CCG representative when he will arrive at the CCG site.
12. Write and deliver instructions for handling, preparing and transporting shelters, sheds and other parts (documents issued in both official languages).
13. Transmission of all technical information required in contract documents in a timely manner.

Without limitation:

- a. The drawings and specifications for all composite material assets and parts (shelters, sheds, extensions, guardrails, hardware, etc.)
- b. Shop drawings
- c. The specifications and drawings for the design of temporary foundations and the as built
- d. The specifications and drawings for construction of the permanent foundations
- e. Photographic survey made during the project.
- f. As built for the shelters, sheds, extensions and other accessories.
- g. Building management manual for shelters and sheds
- h. Quality control manual from the maker





- i. Five years warranty document (including parts and labour).





Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Canadian  
Coast Guard

Garde côtière  
canadienne

CT-014-000-ES-TD-001

# *Computer Aided Design (CAD) Using AUTOCAD®*



*Canadian Coast Guard*  
*Standard*

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**Published under the Authority of:**

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## Document Management

### 1. Authority

This document is issued by the Director General, Integrated Technical Services, Canadian Coast Guard (CCG)'s National Technical Authority under delegation from the Deputy Minister, Fisheries and Oceans (DFO) and the Commissioner of the CCG.

### 2. Responsibility

- a) The Integrated Logistic Support branch is responsible for:
  - i) the creation and promulgation of the document; and
  - ii) the identification of an Office of Primary Interest who is responsible for the coordination and the content of the document.
- b) The Office of Primary Interest is responsible for:
  - i) the validity and accuracy of the content;
  - ii) the availability of this information;
  - iii) the update as needed;
  - iv) the periodical revision; and
  - v) the follow-up of all requests, comments and/or suggestions received by the originator.

### 3. Inquiries and/or Revision Requests

All inquiries regarding this document, including suggestions for revision and requests for interpretation shall be addressed to:

Position Title: Technical / Project Officer, Technical Data  
Address: Mail Stop 7N135B  
200 Kent St, Ottawa,  
Ontario, K1A 0E6

All requests should:

- i) be clear and concise; and
- ii) reference the specific Chapter, Section, Figure or Table.

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## Foreword

The Computer Aided Design (CAD) Drafting Standard provides a source of information for design and production of engineering and construction drawings depicting the Canadian Coast Guard's physical assets.

The document has equal authority in either official language. Where problems of interpretation arise, preference shall be given to (in decreasing order of priority) the latest version of this document, the CCG Technical Data Management Standard CA-014-000-NS-TD-001 referring to this document, or the applicable commercial standard reflecting the true spirit, intent and meaning of the work to be done.

### 1. Purpose

This Computer Aided Design (CAD) drafting standard sets forth the general rules and practices to be used in the preparation of drawings for the CCG, and as a basis for the preparation of subordinate Guidance documentation and associated Work Instructions.

This is not intended as a manual of instruction in the basic principles of drafting. It must be assumed that the personnel engaged in the preparation of drawings have sufficient experience in the fundamentals of drafting to enable them to produce technical drawings.

### 2. Scope

This standard is to be used for the preparation of all Engineering drawings using AutoCAD®. This standard is the primary source of information whenever a question arises concerning the preparation of drawings for Canadian Coast Guard.

### 3. Source of Information

A list of international standards and coordinate information are to be found in Annex A.

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## Chapter 1 GENERAL DRAWING RULES

---

In absence of directives one should follow international industry standards and remain consistent. Suggested list of international standard institutes can be found in Annex A.

### 1.1 CCG TEMPLATE

All technical Drawings must be created using CCG package, which can be obtained from the CCG project manager or contacts listed in Annex A.

### 1.2 DRAWING FILE FORMAT

The CAD drawings shall be delivered in AutoCAD® Native format DWG and also in Real size PDF format.

### 1.3 DRAWING FILE CONTENT

Drawings shall respect following criteria:

- 1) Drawings must be modelled at full scale in “Model Space”. “UCS” is to be set to “World”. Text, symbols, hatch patterns and line widths are to be adjusted by the required scale factor.
- 2) The title block shall be used in paper space only.
- 3) Drawings will be saved in AutoCAD® version 2008 or to the latest accepted version by CCG.
- 4) PDF format should have a white background and the color adjusted in order to obtain good contrast ex: yellow on white is not accepted.
- 5) Drawings will be saved in the “Paper Space” mode with the view selected to “Zoom Extents”.
- 6) No objects should reside on layer “0” or “DEFPOINTS” except for objects contained in a block definition or dimensions. Use the “Plot/Non plot” layer instead of the “Defpoints” layer.
- 7) Drawings are to be purged of all unused objects.
- 8) Drawings must not contain any object definitions without geometry, such as empty text or blocks without objects.
- 9) The “Audit” command must be performed before delivery.
- 10) Drawings will have the “Ltscale” adjusted for printing.
- 11) When applicable, all external reference “XRef” must be delivered with the drawing.
- 12) All new fonts, fill patterns and other user preference settings added to those of the basic AutoCAD® program must be supplied with the DWG digital files (by using, for example, “*Pack and GO*”, “*eTransmit*”).

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## Chapter 2      TITLE BLOCK TEMPLATE

---

The National CCG Title Block template shall be used for all drawings. A complete set of title blocks in all sheet sizes used by the CCG are available from the National Headquarters Technical Project Officer, Technical Data. An example of CCG title block can be seen in Annex C Figure 1. The drawing title block shall be completed as follows:

### **2.1      LAYOUT “PAPER SPACE”**

The title block template shall be used in paper space only. Title blocks inserted in Model Space are not acceptable.

### **2.2      BLOCK ATTRIBUTE**

All CCG title block attributes are pre-set, and the integrity must be maintained.

Official DFO / CCG  
organization marking. Do not  
change.



Fisheries and Oceans  
Canada  
Pêches et Océans  
Canada  
Canadian  
Coast Guard  
Garde côtière  
Canadienne

All vendor information shall  
be located in the vendor  
information data area.  
When applicable the  
engineering stamp is to be  
placed in this area.

Vendor / Sous-traitant

This data field shall consist  
of the following:  
First attribute is the name of  
the asset: e.g. name of the  
ship, area of navaid, etc...  
Second attribute is the  
description/ type: e.g. MSPV  
(Mid Shore Patrol Vessel),  
Lighthouse, etc...

rev	description	by par	date
-----	-------------	-----------	------

Asset - Actif

SITE/ SHIP - SITE/NAVIRE  
SITE/ SHIP - SITE/NAVIRE  
DESCRIPTION  
DESCRIPTION

Brief description shall be  
entered in this field such as:  
The name by which the part  
or items shall be known,  
equipment type, number,  
drawing type and shall  
include the Drawing release  
level (ex: conceptual, as  
fitted, etc.)

Drawing - Dessin

TITLE - TITRE  
TITLE - TITRE  
TITLE - TITRE  
TITLE - TITRE

Date shall be entirely  
numeric following YYYY-  
MM-DD format as per ISO  
8601 standard.  
N.B:When drawings have  
been redrawn, the new  
draftsperson's name and date  
will appear in the revision  
comment data field.

drawn - dessiné	date
-----------------	------

DRAWN	YYYY-MM-DD
-------	------------

designed - conception	date
-----------------------	------

DESIGNED	YYYY-MM-DD
----------	------------

checked - vérifié	date
-------------------	------

CHECKED	YYYY-MM-DD
---------	------------

approved - approuvé	date
---------------------	------

APPROVED	YYYY-MM-DD
----------	------------

Examples of scales and the  
method of designating  
different scales can be found  
in Annex B. Drawings which  
are not drawn to a specific  
scale, the scale field shall  
read "N/A".

When available the official  
CCG Contract project  
number shall be indicated in  
this field.

CCG ref. no. - no. réf. GCC	scale - échelle
-----------------------------	-----------------

REF NO / PROJ NO / FILE NO	SCALE
----------------------------	-------

The drawing number, as  
specified in chapter 3 shall  
be inserted in this field.

drawing no. - no. dessin	sheet-feuille	rev
--------------------------	---------------	-----

DWG NO - NO DES	01/01	#
-----------------	-------	---

Revisions shall be consistent  
with the original method.  
Best practice would be to use  
letters for design/conceptual  
and numerical for  
construction and post-  
construction.

The drawing sheet number shall be entered within this field. When only one sheet is  
drawn, 01/01 shall be inserted. For multi-sheet drawings, 01/05, 02/05 etc. shall be used.



## **Chapter 3      DRAWING NUMBER**

---

### **3.1      INTERNAL USE:**

Drawing numbering will be identified to ensure that assets, systems, and equipment drawing numbers within the CCG will be unique to the items depicted. Numbers for internal drawing shall follow the approved national CCG numbering standards. In absence of an approved national numbering standard, numbering shall be in accordance with local numbering system, and avoiding duplicity with existing national CCG numbers as much as possible.

### **3.2      CONTRACTOR USE:**

Contractors are recommended to obtain drawing numbers provided by the CCG. However, a drawing number following the contractor's numbering convention may be used, as long as it follows a standard. In such a case, the standard used shall be included as a deliverable of the project. In absence of a compliant numbering system the contractor shall follow the CCG numbering standard. In all cases unique numbering is the objective, avoiding duplication with existing contractor and CCG drawing identification numbers.

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## **Chapter 4    GENERAL DRAWING PRACTICE**

---

### **4.1    SIZE AND FORMAT**

#### **4.1.1    Layout**

Each drawing shall consist of no more than one layout to accommodate CCG metadata management system.

#### **4.1.2    Model space**

As much as practical, drawings must be modelled at full size using the International System of Units (S.I.).

### **4.2    ANNOTATIVE MODE**

Consistency in use of annotative mode is mandatory. It is preferred not to use annotative and non-annotative style simultaneously.

### **4.3    TEXT STYLE STANDARD**

- 1) True type font shall be used in all text style within drawings.
- 2) Preferred font file is Arial.
- 3) Font usage should be uniform throughout each project. The height of text must be set to 0 (not fixed) so that it can be changed to suit different scaling requirements.
- 4) All French characters should be accented whether upper or lower case.
- 5) Private company logos must not contain a special font file.
- 6) Paragraphs must be created with “MTEXT” command.
- 7) It is recommended to use only annotative style.

## 4.4 DIMENSION STYLE STANDARD

All dimensioning must be created on entities in model space with associative dimensions.

Annotative dimension styles are preferred.

Two dimensioning formats shall be used to cover most applications:

- 1) Engineering with arrowheads for dimension terminators.
- 2) Architectural with ticks for dimension terminators.

## 4.5 ORTHOGRAPHIC PROJECTION SYMBOLS

Projection symbols shall be placed as a note, only when it differs from third angle projection.

## 4.6 SHEET SIZE FOR PAGE SETUP

Below are the common sheet sizes used by CCG and are included in the CCG Package. Sheet sizes that differ to those below can be used but shall meet commercial standards and respect CCG's Title block template and attributes integrity:

### Sheet Designation Overall Size (mm)

A0	841 x 1189
A1	594 x 841
A2	420 x 594
B1	707 X 1000
Arch D	610 X 914
Arch E	864 X 1118
11 x 17 ANSI B	279 x 432
8.5 x 14	216 x 356
8.5 x 11	216 x 279

Note: When drawings larger than A0 are required, it is recommended that they use a width of 889mm.

## **Chapter 5      LAYER AND LAYER STRUCTURE**

---

### **5.1      SCRIPT**

Scripts are available in the CCG package to automatically create discipline specific layers. In the event that the CCG layering system is not used, the third party shall provide their layering system information with the deliverable.

### **5.2      LAYER NAMING**

Layer naming systems shall be used and based on the specific usage of the drawing information. It shall be used to distinguish system types, component sizes and/or materials, manufacturing data, geometric location or orientation, type of drawing entity and other uses specific to the needs of the user. The following general layer system guidance shall be applied to all drawings.

### **5.3      LAYER SYSTEM**

At a minimum, layering systems shall provide at least one separate layer name for each of the following elements:

- 1) Notes and other text not part of dimensions;
- 2) Dimensions;
- 3) Reference or construction lines that do not represent actual material or structure, such as baselines, centerlines, lines of frames, perpendiculars, etc.;
- 4) Systems, structure or components used as background, not ordered or modified by the drawing;
- 5) Specialized information;
- 6) Drawing features such as section or detail cut lines, break lines, and similar non-physical entities;
- 7) Layer Specification; and
- 8) Revision entities outside of the revision block such as revision triangles, hashing and revision clouds shall be on a separate layer for each revision.

Layer names shall not be used solely to distinguish between line types or colors. Layer names used to distinguish line types or colors shall include elements that also identify the entities as to drawing function.

Line weight must be included in the layer information. Layers structure used within the standard Coast Guard drawing template shall not be changed.

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## Annex A REFERENCES

---

### A.1 INTERNATIONAL STANDARDS INSTITUTES

#### American Society of Mechanical Engineers (ASME)

Three Park Avenue  
New York, NY 10016-5990

#### American National Standards Institute (ANSI)

1899 L Street, NW, 11th Floor  
Washington, DC, 20036

#### International Organization for Standardization (ISO)

1, ch. de la Voie-Creuse  
CP 56 CH-1211 Geneva 20  
Switzerland

#### American Society for Testing and Materials (ASTM)

100 Barr Harbor Drive, West  
Conshohocken, Pennsylvania, USA

#### American Welding Society, Inc. (AWS)

8669 Doral Boulevard,  
Doral, Florida 33166

#### National Electrical Manufacturers Association (NEMA)

1300 North 17th Street  
Suite 1752  
Rosslyn, Virginia 22209

#### Canadian Standards Association, (CSA)

178 Rexdale Blvd.  
Toronto, Ontario  
Canada M9W 1R3

#### Aerospace Industries Association of America, (AIA)

1000 Wilson Boulevard, Suite 1700  
Arlington, VA, 22209

#### Society of Automotive Engineers (SAE)

400 Commonwealth Drive  
Warrendale, PA 15096-0001 USA

## **A.2 REGIONAL/HEADQUARTERS ILS**

### **Headquarters**

200 Kent Street, Centennial Towers  
Station 7W124,  
Ottawa, ON K1A 0E6

### **Western**

25 Huron Street,  
Victoria BC V8V 4V9

### **Central & Arctic**

101 Champlain Blvd.,  
Québec QC G1K 7Y7

520 Exmouth Street,  
Sarnia, ON N7T 8B1

### **Atlantic**

Canadian Coast Guard Base  
Southside Road  
P.O. Box 5667  
St. John's, NL A1C 5X1

4-50 Discovery Drive  
P.O. Box 1000  
Dartmouth, NS B2Y 3Z8



**Annex B      EXAMPLE SCALE**

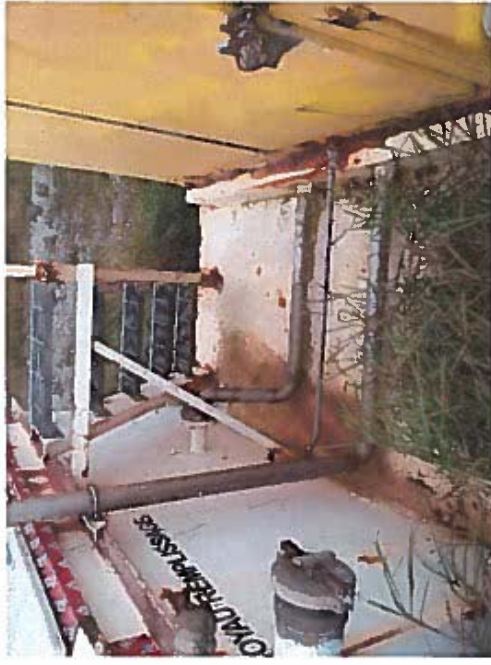
Stage	Type of drawing	Scale	Notes
Design	Sketch and preliminary drawings	-	Scales will vary but it is recommended that preference be given to those used in the working drawing stage.
	Location drawings	-	Scale will vary according to maps used as reference.
Working Drawing	Key Plan	1:2000	
		1:1000	
	Site Plan	1:500	
		1:200	
		1:200	
		1:100	
		1:50	
	Component range drawings	1:100	
		1:50	
		1:20	
	Assembly drawings	1:20	
		1:10	
		1:5	
		1:2	
		1:1	
	Component details drawings	1:10	
		1:5	
		1:2	
		1:1	

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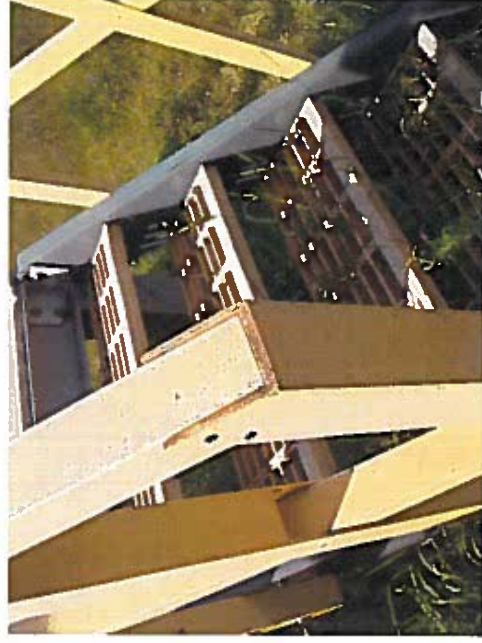
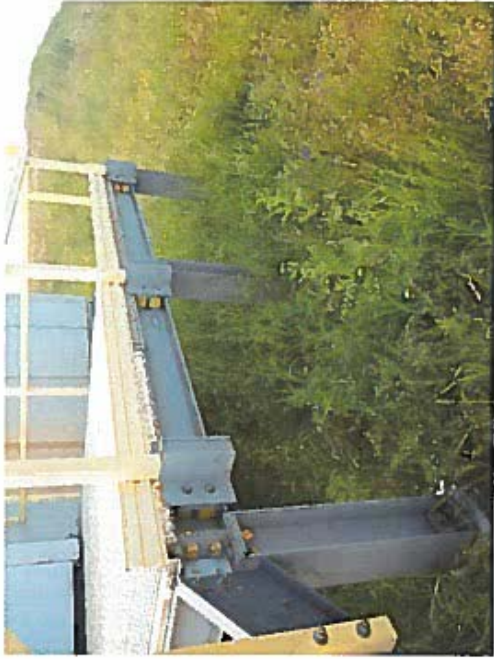


RÉSERVOIR DE JET A (2018)





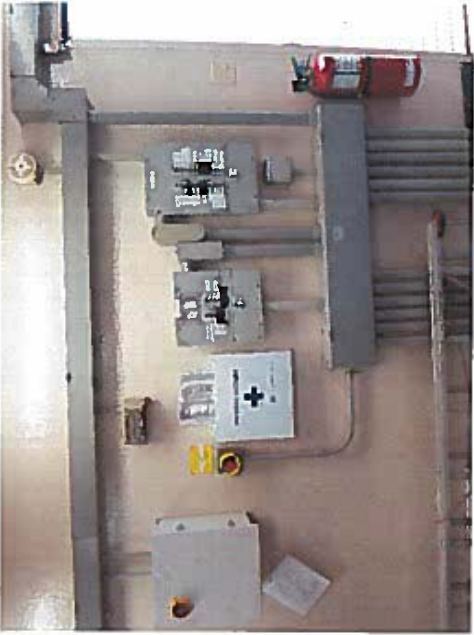
GALERIES ET PASSERELLE (2017)



ABRI ÉQUIPEMENTS ÉLECTRONIQUES (2016)



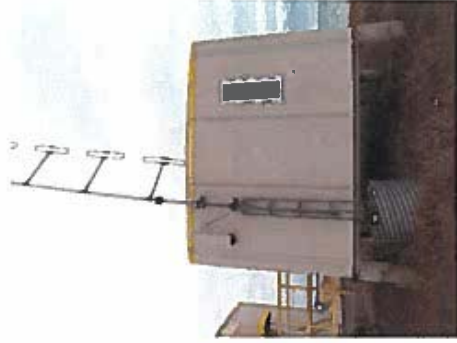








ABRI DE SURVIE (2016)





### ABRI GROUPES ÉLECTROGÈNES












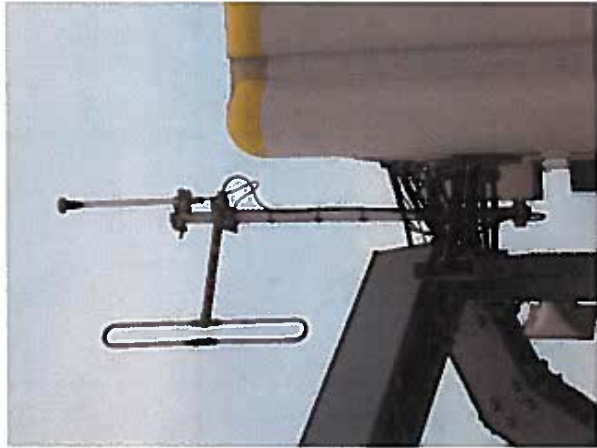






ÉTAGÈRES À CÂBLES, ANTENNE SATELLITE ET ANTENNES À RELOCALISER (2016)











ENVIRONNEMENT CANADA





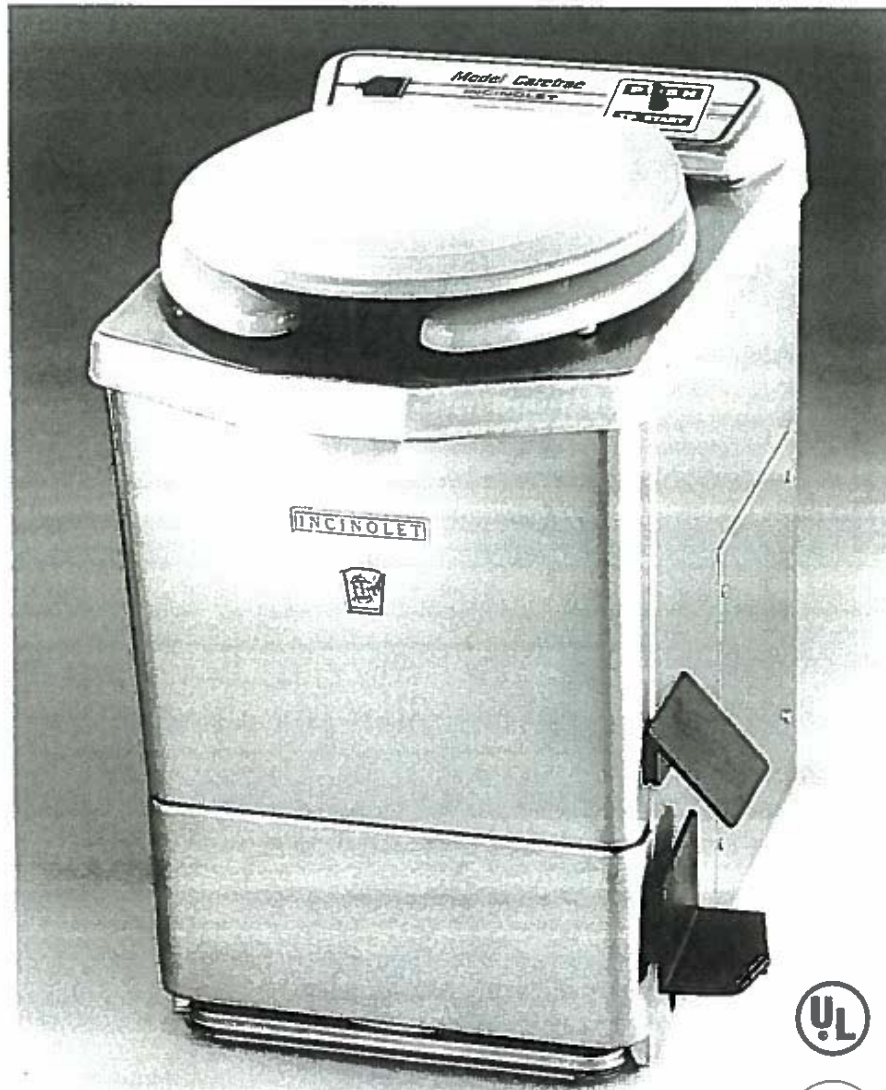


# INCINOLET

## ELECTRIC TOILET SYSTEM

### INSTALLATION / MAINTENANCE MANUAL

Models TR and WB - 240 volts (SN 41000 →)  
Models CF, RV, and WB - 120 volts (SN 57200 →)



Model \_\_\_\_\_  
Serial # \_\_\_\_\_  
Voltage \_\_\_\_\_  
Date installed \_\_\_\_\_

Please have this information handy  
when ordering parts. It can be found  
on ID plate on back of toilet.

**WARNING:** Do not operate INCINOLET until you have read thoroughly and understand completely all instructions and safety rules contained in this manual. Save this manual and review frequently for continuing safe operation, and instructing possible third-party users.

***For questions or assistance call 1-800-527-5551***

**Thank you...**

*for purchasing INCINOLET electric toilet. We have manufactured your toilet with the finest materials and workmanship to give you many years of dependable service.*

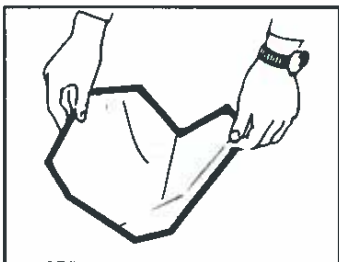
## Manufacturer's Statement

INCINOLET toilets provide sanitation without pollution when used by persons familiar with its operation and responsible for its proper installation, use and maintenance. Not recommended for use by general public or in some rental properties.

## Warranty Information

A copy of the warranty will be furnished free of charge upon request.

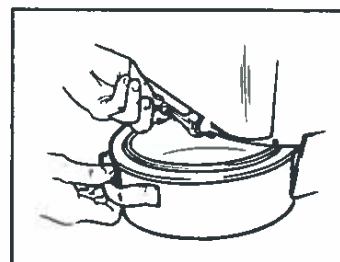
### Tips for Success



Use a bowl liner for each and every use.



Push button to start after each use.



Empty ashpan **OFTEN** – when ash is 1/2 inch deep

Fig. 1

## Read all instructions carefully.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards.



#### To avoid shock hazard:

1. Always unplug INCINOLET before doing any electrical maintenance.
2. Do not operate toilet if cord is damaged or you suspect electrical malfunction.
3. Competent personnel should do all tests or repair work. While many tests and repairs can be done by the owner, we recommend an electrician for anything you are not comfortable doing.

During incineration there is flame and high heat in the burn chamber. It is safe to use INCINOLET during the cycle and safe to push the pedal while standing, to drop waste into what is already burning.



#### To avoid burn hazard:

1. Never depress foot pedal while seated on toilet.
2. Do not remove ashpan until toilet has cooled completely.
3. Young children must be supervised when they use INCINOLET.
4. Do not install toilet in an explosive atmosphere.
5. Never burn trash or garbage in INCINOLET as it may produce a high flame that could damage the toilet or injure a person.

INCINOLET is designed to incinerate human feces, urine, tampons, and toilet paper only. Using INCINOLET to burn items of household trash or food scraps will void your warranty and could cause damage to the INCINOLET and possibly cause property damage or even personal injury.

## Save These Instructions

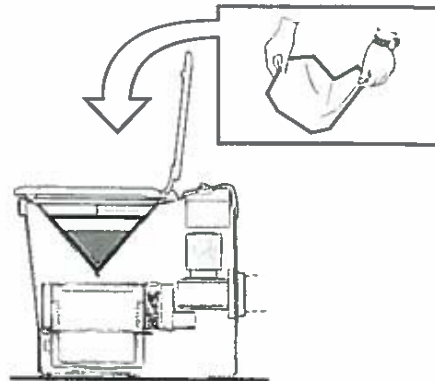
# HOW TO USE INCINOLET

## 1 Place liner in bowl before each and every use.

(Using without a liner will cause urine to run out on the floor, damage to the unit, and odor.)

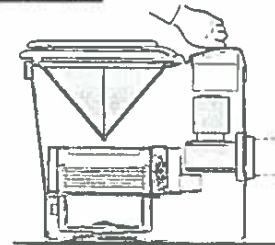
After use, face toilet, step on foot pedal to open bowl and allow waste to drop into incineration chamber.

Make certain that top edges of liner are below lid when lid closes.

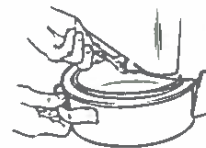


## 2 Push start button after each use. (Accumulated waste will cause odor.)

Unit may be used at any time, even while incinerating a prior deposit.



## 3 Empty ashpan frequently – usually when ash is no more than 1/2" deep. (Ash build-up shortens heater life.)



Note: Capacity of ashpan is about 1 gallon. Accumulating waste or allowing excessive ash build-up causes overload that can cause early heater failure, odor, and overflow of waste inside the toilet and onto floor.

Fig. 2

## How INCINOLET Works

When you push the start button, heater and blower both come on. Heater alternates off and on for 1-1/4 hours. Blower stays on for an additional 10 to 45 minutes. **YOU CAN USE INCINOLET ANY TIME DURING THE INCINERATION CYCLE.** Push start button after each use.

**YOU SHOULD INCINERATE WASTE AFTER EACH USE. ACCUMULATED WASTE, PARTICULARLY SOLIDS, RESULTS IN ODOR AND CAN REDUCE LIFE OF THE HEATER.**

If INCINOLET is used primarily in the morning, with little or no use during the day, then reset the timer to 1-1/2 or 2 hours to insure complete incineration. (See page 8.)

Ash is germ-free and safe to handle when it has burned to a light color. If ash is dark or burn is incomplete, run an extra cycle to assure safe handling of ash. Ash is not suitable to use as fertilizer or compost. It should be disposed of in household trash in accordance with state and local codes.

**Party Stress** For times when you are having a party or house guests, when the INCINOLET may have to serve more than the stated capacity for a short time, follow these tips:

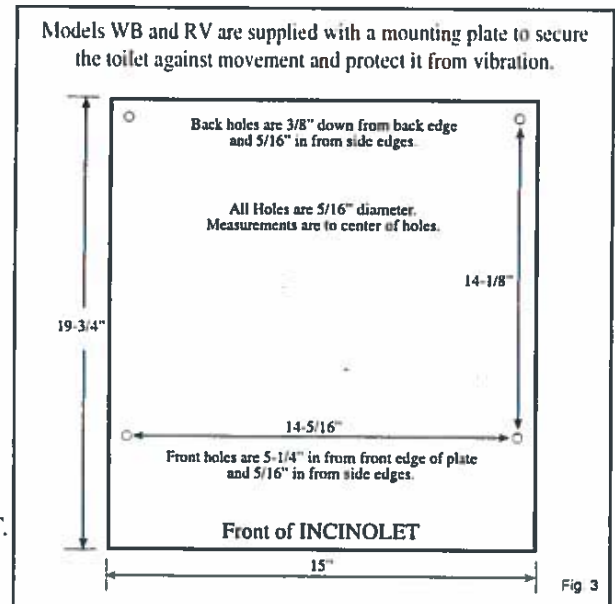
1. Empty the ashpan before guests arrive.
2. Be sure guests are instructed as to proper use and that a *bowl liner is required for each and every use.*
3. Push button after each use and check occasionally to be sure it's not over filled.
4. You may need to run an extra cycle or two to insure complete burn.

# HOW TO INSTALL INCINOLET

1. Remove all packing materials.
2. Set unit on level floor in desired position:  
Allow clearance at rear for wiring and vent-line connection. Allow at least 4" on left side and plenty of room on the right side to operate foot pedal.
3. Prepare electrical supply within 4 feet of toilet location.  
(see instructions below)
4. Install mounting plate to floor (RV and WB only - Fig. 3).
5. Connect vent-line.
6. Plug INCINOLET into the proper receptacle on a 20-amp circuit. Dedicated circuit recommended.

⚠ Do not install in an explosive atmosphere.

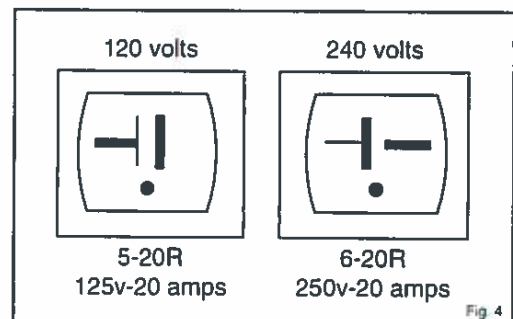
**NOTES:** Vinyl floors and some synthetic carpets may discolor. In such installations, you may want to put a sheet of aluminum under INCINOLET to dissipate heat. Keep bedding, curtains and other flammable materials away from contact with the INCINOLET.



## Electrical Preparation

This appliance has a 20-amp plug and is meant to fit **only** into a 20-amp receptacle. (Fig. 4) If the outlet you intend to use for the INCINOLET is not the proper type, then change the receptacle. You must have a circuit suitable for 20 amps, headed by a 20-amp circuit breaker. Do not attempt to defeat this safety feature by modifying the plug in any way. Power cord is 4 feet long.

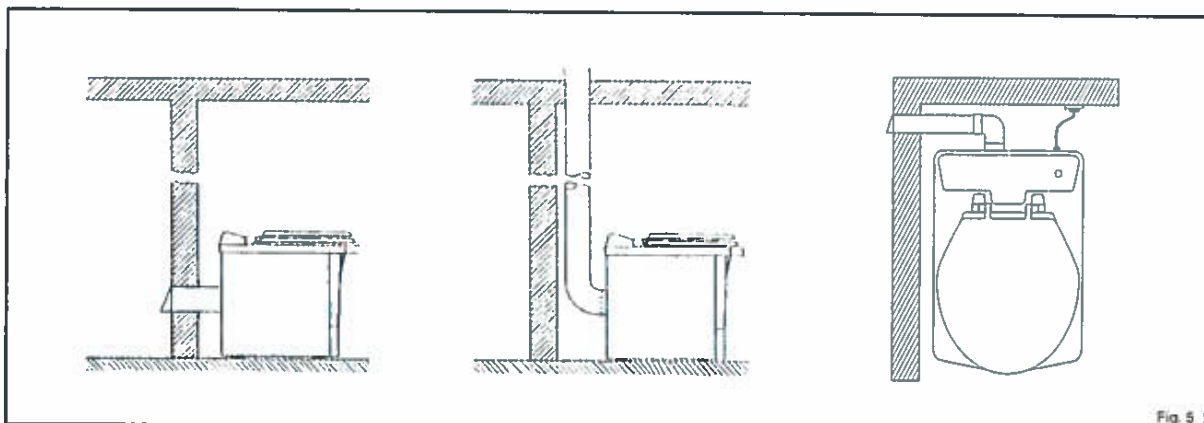
⚠ Extension cords should not be used with this appliance.



## Preparing Vent-Line

Vent pipe can run horizontally or vertically. Venting materials can be placed within a wall and INCINOLET can be placed close to a wall at the back. Allow 6 to 8 inches on the right side (facing the toilet) to operate the foot pedal.

Vertical vent-line should terminate with a rain cap. For horizontal venting use a dryer flap or add a PVC elbow turned downward to prevent back-drafting.

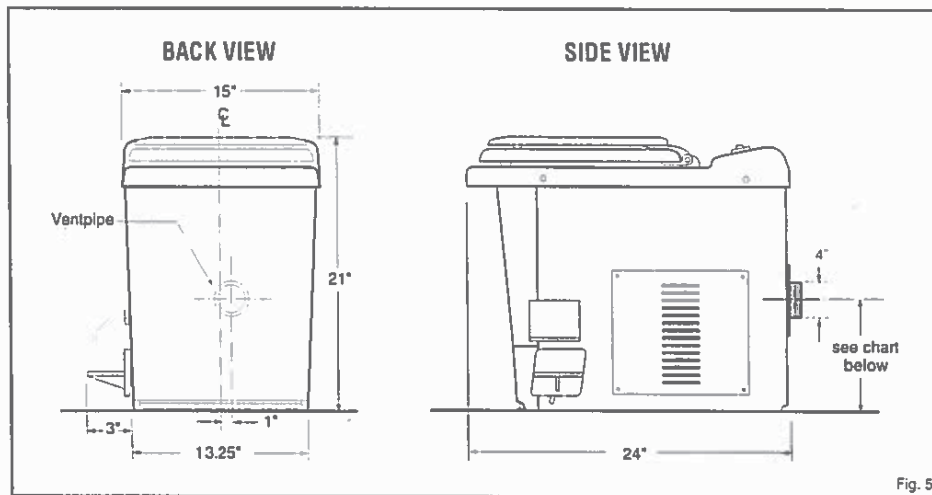




## Tips for Best Venting

1. Allow for plenty of make-up air into toilet room with door louvers or an air gap along bottom of room door.
2. **NEVER USE AN OVERHEAD EXHAUST FAN WHILE INCINOLET IS RUNNING.**  
It might overpower the exhaust fan within the unit and cause smoke and odor to come into the room.
3. **DO NOT** cover the end of the vent-line with fine mesh window screen. Use 1/4 inch mesh ("hardware cloth") if you must use something to keep "critters" out of the vent-line.
4. Increase diameter of vent pipe if 2 elbows or more than 10 feet of vent-line is required.

**Center of vent collar on the back of INCINOLET varies by model.  
Use this chart to find the correct measurement for your toilet.**



### Center of vent hole – up from floor:

Model CF	10"
Model RV	10 1/4"
Model TR	10"
Model WB, 120 v.	10 1/4"
Model WB, 240 v.	10 1/4"
Model WB, 208 v.	10 1/4"

For proper operation, vent-line must be as straight as possible with a minimum of elbows. Maximum length of pipe at the 4" diameter is 10 feet plus 2 elbows. Use larger diameter pipe for longer runs. Contact factory if you have questions about special installations.

Improper venting can cause odor within the room and overheating of the unit. This unit is equipped with an exhaust blower, which draws air from the room into the unit for cooling. The blower also draws smoke from the incinerator through the catalyst to remove odors. If the vent line is too small, too crooked or too long, the blower cannot push enough air through the vent-line to do its function. Overheating and odor will result.

For best performance, use the shortest possible run and a minimum number of elbows. Do not vent into an attic or crawl space. Assemble vent pipe pieces securely, gluing or taping all connections. Connect coupling and pipe to vent collar at the rear of the unit. To prevent animals entering vent pipe, you may use hardware cloth with 1/4" mesh. To prevent back drafting, use a 90 degree elbow turned down or a rain cap if vented vertically.

**START-UP PROCEDURE** - Once Incinolet is connected to vent line and plugged into a 20 amp receptacle on a 20 amp circuit of the appropriate voltage, it's a good idea to run a test cycle using a cup of water poured into a bowl liner.



## UNDERSTANDING ELECTRICAL OPERATION

1. Pushing the **Start Button** closes the **Start Switch** which engages a timer. **Timer** begins a new cycle each time start switch is closed. Timer doesn't accumulate time, merely starts over again.
2. Timer is set to 75 minutes at factory. Timer activates temperature controller. **Controller** output is connected to the coil of a **Relay**, which controls the electric current to the heater.
3. Temperature Controller responds to the output from a **Thermocouple**, which measures **Heater** temperature. When the temperature of the lower coil of the heater reaches approximately 1000+ degrees F., controller shuts down the relay, which cuts off the heater. When heater temperature falls to about 960 degrees F., controller again activates relay and heater comes on. Heater is off, then on, about twice a minute.
4. Timer also controls exhaust blower. **Blower** and heater come on and both stay on for 75 minutes together. After heater cuts off, blower continues on until incinerator area has cooled to about 130 degrees F.
5. **Blower Thermostat (ITS)** closes when it senses a temperature of 130 degrees F., and stays closed after the heating cycle is over, until incinerator temperature falls below 130 degrees F., about 10 to 45 minutes later.

## Power Consumption

One complete cycle uses about 1 1/2 to 2 kilowatt hours of electricity. Because you can use INCINOLET any time during the cycle, your "per use" cost is lower.

## During a Power Failure

If waste is burning in the INCINOLET when the electric service is interrupted, you may get smoke and odor in the room. Open a window to ventilate as best you can. When power comes back on, the fan should start automatically, if needed, and run until unit is cool enough. Heater does not come on until you push the button. You can push foot pedal to check contents of ashpan then start a cycle if needed.

## To Interrupt an Incineration Cycle

In normal use, it is never necessary to stop a cycle to add waste. (See "How to Use", page 3.) However, on rare occasions (doing repairs, etc.), you may want to stop a cycle in progress. Turn the circuit breaker off momentarily (or unplug INCINOLET) to cancel the cycle. Then turn the circuit breaker back on (or plug in INCINOLET) so that the toilet is ready for use. If unit is hot enough to need it, the blower should come back on automatically to cool it. **NOTE:** If blower does not come on, smoke and odor may come directly into room. In this case, you may want to start the cycle again for a few minutes to finish burning off the waste remaining in the ashpan.

## Thermostats

Your INCINOLET is equipped with three thermostats.

1. **SAFETY THERMOSTATS (STS)** shuts heater off if air temperature inside toilet reaches about 140°F. It is located on the front surface of the control box at the upper right rear of the unit. To replace, disconnect voltage, remove top of unit, disconnect lead wires to old thermostat, and replace. (Fig. 9)
2. **BLOWER THERMOSTAT (ITS)** turns fan off when outside skin of chamber cools to 130°F and will turn fan on again if temperature increases. It is accessible through access panel opening, just to the left of the heater terminals. To replace, follow same procedure as for STS above. (Fig. 12)
3. **LIMIT THERMOSTAT (TS)** turns heater off if skin of chamber reaches a temperature of 300°F. It is located below the ITS blower thermostat and heater terminals, outside ashpan compartment. To replace, follow same instructions as for other thermostats. (Fig. 12)

## CARE AND CLEANING

Keep your INCINOLET clean to prevent odors.

- Empty ashpan when ash is about 1/2 inch deep. **EXCESSIVE ASH BUILD-UP CAUSES ODOR, SHORTENS HEATER LIFE, AND DECREASES EFFICIENCY.** If ash is caked and hard to remove, just soak insert pan for a few minutes in warm water.
- Wipe up urine spills as they happen.
- Every 3 to 6 months – clean blower wheel and inside of INCINOLET.
  1. Unplug toilet and remove top. (See instructions below.)
  2. Clean inside with a detergent or a spray cleaner such as Formula 409. (Do not use pine oil cleaners.)
  3. Remove blower wheel and clean. (See page 10.)
  4. **DO NOT STEAM CLEAN.**
  5. Stainless steel polish can be used on outside surfaces to keep INCINOLET's finish lustrous.

**TIP:** If blower becomes noisy or vibrates, clean or replace blower wheel. (See page 10.)

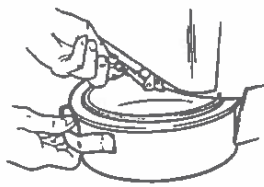
### Bowl Liners

**BE SURE** that the top edges of the liner are below the lid when it closes. Otherwise, paper will burn outside the chamber and cause momentary smoke and odor. **CAUTION:** Failure to use bowl liner for each and every use will always cause odor and urine on the floor.

Bowl liners are made of a special paper coated with polyethylene film. This liner is necessary to catch and contain the waste, then convey it into the incineration chamber. **USE A BOWL LINER FOR EACH AND EVERY USE.** Liner protects the bowl and prevents urine from draining to the floor.

### How to Remove Ashpan

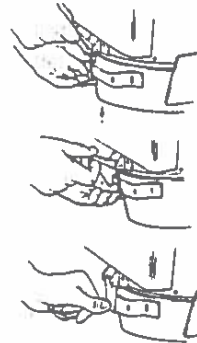
**⚠** Remove ashpan only when pan is cool and toilet is not operating.



#### TO REMOVE ASHPAN

Remove ashpan panel. Raise camloc handle and unhook it from ashpan handle. Pull ashpan out. Empty ash in garbage.

**CAUTION: ASHPAN MUST BE SECURELY IN PLACE FOR PROPER OPERATION.**



#### TO REPLACE ASHPAN

Push ashpan firmly into place.

Lift up on ashpan handle and engage hook of camloc under ashpan handle.

Push down on camloc handle. Replace ashpan panel.

Fig 7

### Removing the Top (Seat, Lid, Bowl Halves)

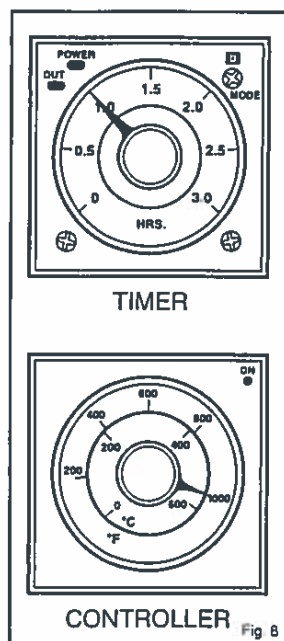
Top is held in place with four screws, two per side and a rubber boot which protects the start button. Remove them, and then lift top up.

To replace top: With incinerator lid closed, hold bowl halves together and lower top into position. Replace four screws and rubber boot over start button. **Tip:** If you have trouble holding bowl halves in closed position while placing it back on toilet, just use a small piece of masking tape to hold them together, then slice through it from the top later.

### Access Panel

Four screws hold on Access Panel, located on the right side of toilet (same side as foot pedal). Remove panel to expose blower thermostat, limit thermostat, thermocouple, and heater terminals. (Fig. 12)

# TROUBLESHOOTING



## TIMER & TEMPERATURE CONTROLLER THE KEY TO TROUBLESHOOTING

Timer limits heating cycle. Controller limits heater temperature. Timer and temperature controller are within control box in upper right corner of housing, accessible with top removed. Timer has two lights: green and red.

Temperature controller has one red light. A steady green light on timer indicates unit has power and is ready for operation. When start button is pushed, green light begins blinking and the red light comes on and stays on for a timed interval, during which time temperature controller is activated and its red light is on. Controller red light means that the relay is activated and supplying power to heater. Controller red light stays on until timer cuts off after the timed interval, or heater reaches maximum allowed temperature and thermocouple signals controller to open relay. In actual operation, when timer reaches end of timed

interval, its red light goes off, and blinking green light turns steady again. During the timed interval, controller red light will be on constantly until heater reaches about 1200 degrees F, at which point controller red light goes off and the relay opens. Controller red light comes on again after 30 seconds or so, stays on for about 40 seconds, then goes off again, and so on until the end of timed interval.

### TIMER ADJUSTMENT: (See Fig. 8.)

Timer dial reads 0 to 3 hrs. Timer pointer is set to 1-1/4 hrs. If INCINOLET is used primarily for solids deposits in rapid succession and incineration is incomplete, move pointer to 2.0 hrs. If used throughout the day, both for urine and solids, timer would be best set at 1-1/4 to 1-1/2 hr. To adjust timer, remove top of toilet and turn dial so timer reads new setting. (See p. 7.) Replace top. **DON'T MAKE ANY ADJUSTMENT REQUIRING SCREWDRIVER.**

**! Unplug toilet before doing repairs. Shock hazard present when toilet is plugged in for testing.**

### BLOWER COMES ON BUT HEATER DOESN'T HEAT

Remove top, examine timer and controller as above. If both timer and controller lights are on, then heater has failed. To verify, remove access panel, measure voltage directly across heater terminals, not from terminal to ground. If voltage appears, REPLACE HEATER. If no voltage appears, check circuit further.

### TIMER LIGHTS WORK BUT CONTROLLER RED LIGHT IS NOT ON

Test thermocouple. Unplug toilet, remove side access panel. Remove wire nuts from thermocouple leads (#6 & #7). Twist the gray and purple wires together, then plug unit in and push start button. If controller red light comes on, REPLACE THERMOCOUPLE.

### CIRCUIT BREAKER OPENS WHEN START BUTTON IS PUSHED

This indicates heater may be shorted to ground. Unplug toilet, remove access panel. Remove orange lead wires to heater terminals. Plug toilet in, push start button. If blower comes on and circuit breaker does not open, heater is shorted. REPLACE HEATER.

Unplug toilet, examine all wiring which might be grounded by touching housing. REPLACE OR TAPE ANY BARE WIRES.

### NOTHING COMES ON, BUT TIMER GREEN LIGHT IS ON

Inspect timer lights as you push start button. Red lights should come on, green light should begin blinking. If not, CHECK START SWITCH OR REPLACE TIMER.

### BLOWER, HEATER WON'T STAY ON

If timer, blower and heater come on when start button is pushed but turn off as soon as start button is released, REPLACE TIMER.

### BLOWER STOPS AT END OF HEATING CYCLE

Blower should be on from 10 to 45 minutes after heater cuts off. Unplug toilet, remove access panel, inspect, tighten any loose wires. REPLACE BLOWER THERMOSTAT.

### BLOWER DOES NOT OPERATE

Blower must come on immediately when start button is pushed and should not stop while heater is on. If not, check blower wheel to be sure it's not binding. Listen to blower motor for a humming sound (like motor is trying to start). This would indicate bad motor bearings. REPLACE BLOWER MOTOR

### BLOWER OFF & ON AT CYCLE END

It is normal for blower to stop for 4 or 5 minutes, then start again for a few minutes, a couple of times at end of cycle. If, however, blower stops and starts rapidly, blower (ITS) thermostat is faulty. REPLACE ITS THERMOSTAT

### BOWL HANGS OPEN: PEDAL WON'T RETURN

1. Closing mechanism may be out of adjustment.
2. Foot pedal goes too far down and locks up. Place block under foot pedal to prevent excess travel.

### EXCESSIVE NOISE, VIBRATION CLEAN OR REPLACE BLOWER WHEEL.

### INCOMPLETE INCINERATION

Can be any one of several causes:

1. Start button not pushed after each use.
2. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
3. Too many people using toilet.
4. Burn cycle too short. Add more time to the timer.

### ODOR WITHIN ROOM

Can be any one of several causes:

1. Failure to use bowl liner each and every time or careless use of liner.
2. Solids not completely incinerated. May need more time on timer or additional incineration cycles.
3. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
4. Back-drafting. Use back-draft preventer on horizontal vent-line or run the vent vertically with a rain cap at the top.

### ODOR OUTSIDE

Causes same as above, plus:

1. Catalyst port perforations are clogged. Clean chamber wall behind heater coil with small brush.
2. Catalyst has "set". Stir with small rod to loosen. (See catalyst p. 11.)
3. Incinerator lid hanging open, allowing odor to escape.

### RESIDUE BLACK, LIKE CHARCOAL

Ash should be gray. Black lumps means insufficient air is being drawn into chamber. There may also be soot around ashpan lip at front and on inside of ashpan panel. Remove ashpan and use small brush to clean perforations in inner incinerator wall back of heating coils.

*For help with troubleshooting  
or to order parts, call*

**1-800-527-5551-USA**

*From other countries,  
call agent shown on front cover.*

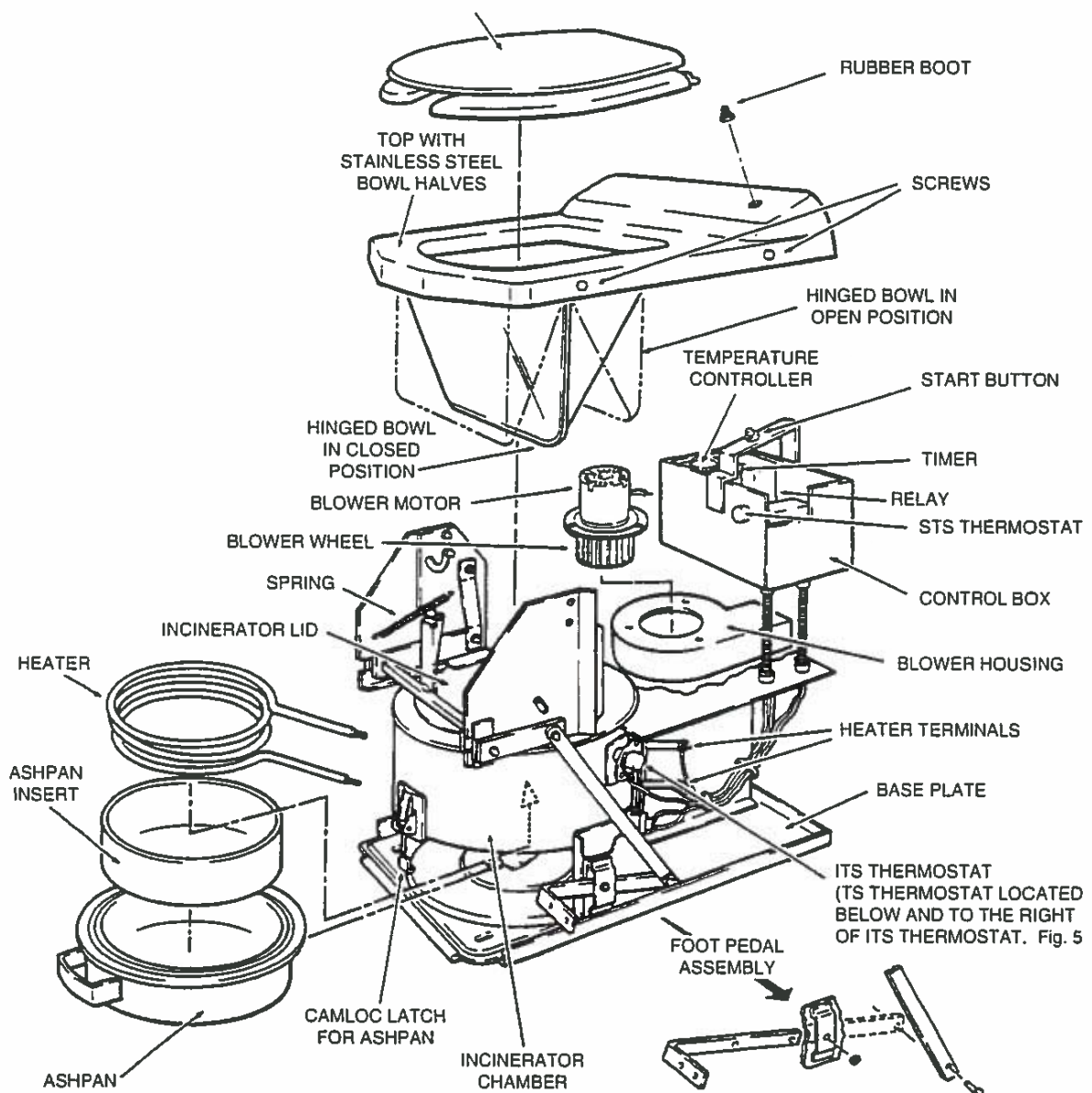
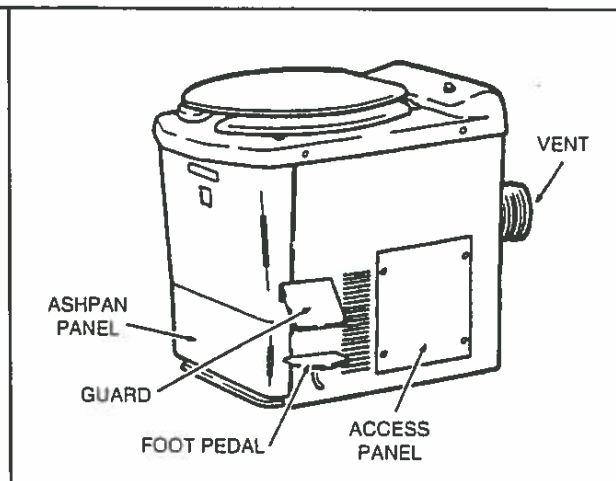
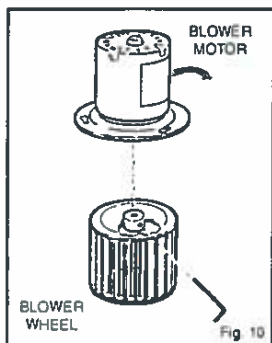


Fig. 9



# MAINTENANCE AND REPAIRS

## Clean Blower Wheel



Blower draws fresh air into toilet to provide oxygen for the burn, carries smoke and odor into the catalyst, then exhausts moist air outside. Clean blower wheel and housing every 3 - 6 months, or any time excessive noise and vibration occur.

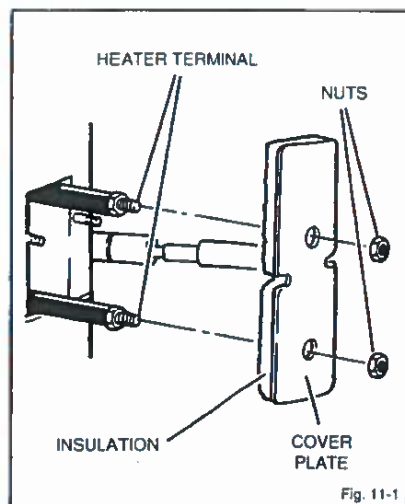
1. ⚠ Unplug INCINOLET and remove the top.
2. Disconnect two wires on side of control box to free motor.
3. Loosen (no need to remove) 3 screws holding blower motor plate. (Fig. 10). Twist and lift motor over screw slots to remove it.
4. Use 1/8" Allen wrench to remove set screw in wheel hub.
5. Clean grease and dirt from wheel with hot soapy water or a degreasing cleaner.
6. Replace wheel if corroded or if vibration indicates it is out of balance.
7. Clean inside of blower housing occasionally.

## Replace Heater

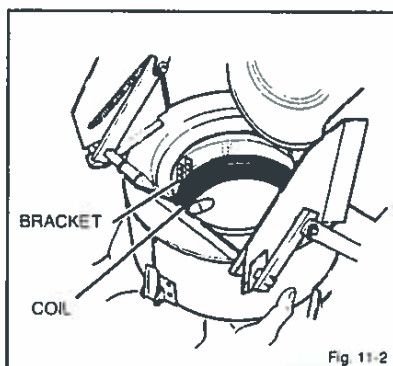
**Note:** For maximum heater life incinerate after each use, and keep ash level down to no more than 1/2 inch.

### To Remove Old Heater:

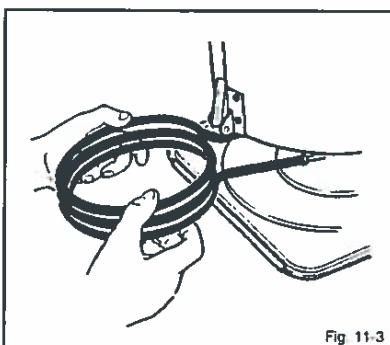
- ⚠ Unplug INCINOLET. Remove ashpan. Remove access panel. Remove top. Hold incinerator open either by wedging down the foot pedal or blocking flushing mechanism in open position.
- Remove thermocouple but do not disconnect. (Fig. 12)
- Disconnect wiring to heater terminals. Remove cover plate and insulation around heater terminals. (Fig. 11-1)



- Push up on heater coils to clear heater brackets. (Fig. 11-2)



- Remove heater through ashpan opening. (Fig. 11-3)  
Note: Brackets may be wedged tightly in slots in wall. It is okay to remove brackets, but not absolutely necessary.



### To Install New Heater:

- Reverse above procedure. Locate heater in brackets, making sure brackets are seated in slots in the incinerator wall. (Fig. 11-2)  
**IMPORTANT:** Locate heater at lowest position in heater bracket. Coils must not touch each other.
- Replace insulation and cover over heater terminals. (Fig. 11-1)
- New heater coils are furnished with a hex nut, already firmly tightened against the mica insulation, washers, and a lock nut or 2 nuts. Attach wire terminals (on the orange wires) to heater studs in this order: one washer against the stationary hex nut, wire terminal, one washer, 2 nuts. Use a 3/8" nut driver or end wrench to tighten the 2 nuts against the washer. Hold the orange wire in one hand while tightening the 2 nuts, with the other hand. Continue tightening until the orange wire terminal is quite secure and cannot be turned.
- Replace thermocouple. Push knurled cylinder to compress spring. Turn to engage stud, then release. Spring must be compressed to insure that tip of thermocouple contacts outer surface of heater. (See p. 11.)
- Replace access panel, ashpan, top. Close circuit breaker.
- Plug INCINOLET in. Start cycle to test heater and total operation.

## Thermocouple

Thermocouple, in combination with the temperature controller, limits temperature of the heater and prevents overheating. Thermocouple, Type K, develops a small voltage proportional to the temperature of the heater. Thermocouple is located to the right of and midway between heater terminals. (Fig. 12) Tip of thermocouple makes contact with the lower heater coil.

Thermocouple leads are color-coded. Wire with red core must be connected to purple lead #7 within the "F" wire nut. Wire with yellow core must be connected to gray lead #6 in "E" wire nut.

**IMPORTANT: EXACT PROCEDURE MUST BE FOLLOWED TO PREVENT OVERHEATING AND HEATER FAILURE:**

1. To replace thermocouple, **▲** unplug INCINOLET and remove side access panel. Disconnect wire leads with "E" and "F" wire nuts. Then push in knurled rod, turn to disengage, pull out thermocouple.
2. To install new thermocouple, reverse procedure. Make sure that wire with red core is connected to purple #7 and yellow core wire is connected to gray #6.
3. After inserting thermocouple, be sure that the tip is making contact with lower heater coil along outer surface of coil.

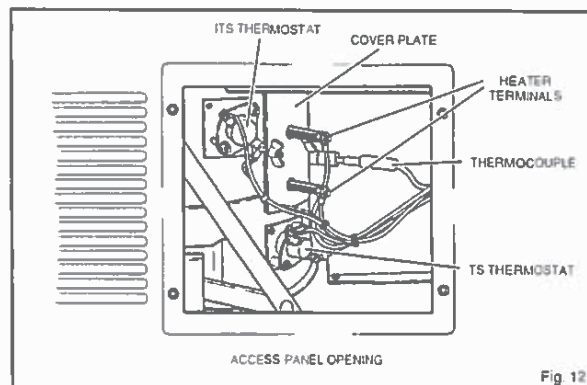
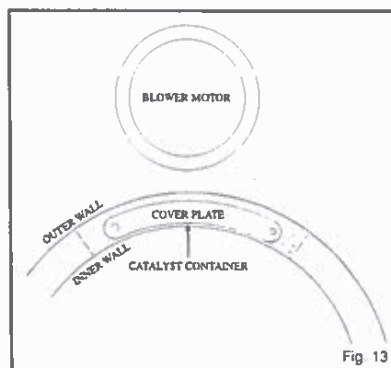


Fig 12

## Catalyst



INCINOLET uses a heat-activated, platinum type catalyst pellets to suppress smoke and odor. Pellets are contained in a chamber within the incinerator walls near the blower, and do not normally need to be replaced. Inner and outer walls of the chamber are perforated to allow the blower to draw odor through catalyst pellets. A crescent shaped cover is held on with two small nuts.

In time, pellets may become too closely packed to allow proper flow of odor through the catalyst. Dust and ash may clog the chamber perforations, forcing smoke and odor out through the front of the ashpan, through the blower, and on to the outside.

If exterior odor is bad and inside of toilet is clean, clean the catalyst. To do this, open catalyst container by removing two nuts and cover plate. Use a small, hand-held vacuum to pull out pellets. **SAVE PELLETS!** Gently rolling pellets in a flat pan facilitates removal of dust. Brush chamber walls to clean perforations. Put cleaned pellets back and attach cover. Catalytic action should now be fully effective.

## Replace Relay

Relay acts as a switch that controls electric current to the heater within the time constraints of the Timer and the temperature constraints of the Controller. Relay is located in the control box beside the timer and controller.

1. **▲** Unplug INCINOLET and take the top off.
2. Remove six lead wires to relay terminals. Carefully mark so you can reattach in the proper positions.
3. Hold back spring clips that hold relay in place.
4. Pry relay out. Replace and rewire.

## Safety Features

1. Timer limits heating cycle.
2. Temperature Controller limits heater temperature.
3. Safety Thermostat (STS) prevents overheating if blower were to fail.
4. Limit Thermostat (TS) limits temperature if controller were to fail.

Please furnish serial number with your parts order.

## PARTS LIST

PART	240 VOLT UNITS (S/N 41000 and UP)	120 VOLT UNITS (S/N 57200 and UP)
ASHPAN, Composite, SS	PAN 023	PAN 023
ASHPAN INSERT, SS	PAN 027	PAN 027
BLOWER HOUSING, SS	HOU 004	HOU 004
BLOWER MOTOR	MOT 010	MOT 006
BLOWER WHEEL	WHE 002	WHE 002
BRACKET SET, for heater	BRA 009	BRA 009
CATALYST, 1/4# BAG	CAT 003	CAT 003
CONTROLLER, Temp., Omron	CON 018	CON 017
HEATER - for Models CF, RV, WB (120v)	— — —	HEA 040
Models TR, WB (240v)	HEA 007	— — —
RELAY, Omron	REL 008	REL 007
SEAT & LID	SEA 001	SEA 001
SPRING, 1/4" diameter x 4" long	SPR 003	SPR 003
THERMOSTAT, TS - L-300	THE 012	THE 012
THERMOSTAT, ITS - F-130	THE 014	THE 014
THERMOSTAT, STS - L-140	THE 013	THE 013
THERMOCOUPLE	THE 009	THE 009
TIMER, Omron	TIM 016	TIM 016

208v units use 240v parts except: 208v heater HEA009 and 120v Blower Motor MOT006.

## Wiring Instructions

This unit is furnished with an electric cord and plug. It requires a circuit protected with a 20 amp circuit breaker and no other appliance on it. DO NOT CONNECT TO POWER BEFORE VENTLINE HAS BEEN INSTALLED.

**NOTE: UNIT IS GROUNDED INTERNALLY THROUGH THE FURNISHED CORD AND PLUG.**  
MAKE CERTAIN THAT YOUR CIRCUIT HAS ADEQUATE GROUNDING.

## Wiring Diagram



**Unplug before doing any electrical repairs.**

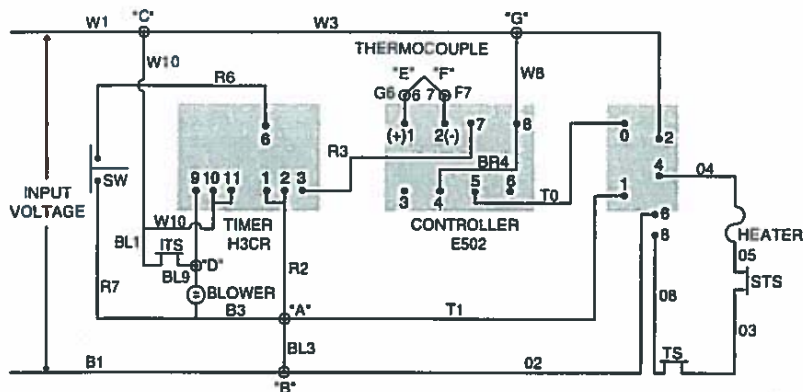
WIRE COLORS: Black=B Red=R Blue=BL Orange=O Gray=G Purple=P Tan=T White=W Brown=BR  
Thermocouple Lead 6 is (+) Thermocouple Lead 7 is (-)

### A, B, C, D, E, F and G are WIRE NUTS:

A connects BL3, R7, B3, R2, T1  
B connects B1, BL3, 02  
C connects W1, W3, W10  
D connects BL9, BL9  
E connects G6, G  
F connects P7, 7  
G connects W3, W4, W,8

### CONTROL ELEMENTS:

ITS - Inverse thermostat to control blower - F-130  
STS - Safety thermostat in case of blower failure - L-140  
TS - Limit thermostat to prevent overheating - L-300  
SW - Start Switch



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**1-800-527-5551**

In other countries, call the agent  
shown on front cover of manual.

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Revised 03/12



**INCINOLET®**  
ELECTRIC INCINERATING TOILET

## INSTALLATION / MAINTENANCE MANUAL

All Models



NSF Protocol P8  
Electrical Incinerating Toilets - Health and Sanitation  
(replaces 1983 edition of NSF Standard 41)

**CALL TOLL FREE  
NATIONWIDE**

**1-800-263-0379**

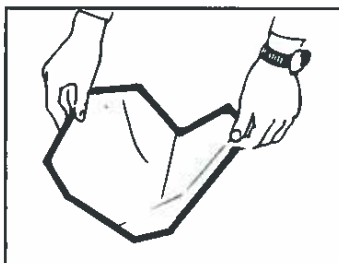
Fax: (519) 938-9214  
Email: [incinolet@rogers.com](mailto:incinolet@rogers.com)  
Web: [www.incinolet.ca](http://www.incinolet.ca)

**WARNING:** Do not operate INCINOLET until you have read thoroughly and understand completely all instructions and safety rules contained in this manual. Save this manual and review frequently for continuing safe operation, and instructing possible third-party users.

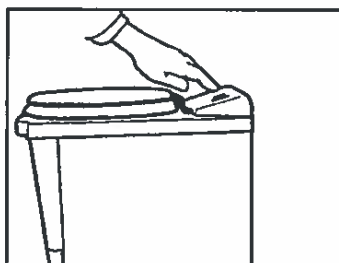
***For questions or assistance call 1-800-263-0379***



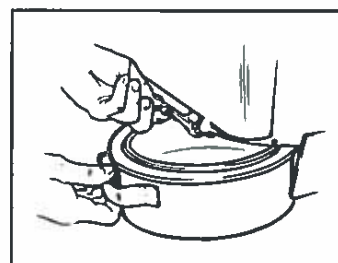
## Tips for Success



Use a bowl liner for each and every use.



Push button to start after each use.



Empty ashpan **OFTEN** – when ash is 1/2 inch deep

Fig 1

## How INCINOLET Works

When you push the start button, heater and blower both come on. Heater alternates off and on for an hour. Blower stays on for an additional 30 to 55 minutes. **YOU CAN USE INCINOLET ANY TIME DURING THE INCINERATION CYCLE.** Push start button after each use.

**YOU SHOULD INCINERATE WASTE AFTER EACH USE. ACCUMULATED WASTE, PARTICULARLY SOLIDS, RESULTS IN ODOR AND CAN REDUCE LIFE OF THE HEATER.**

If INCINOLET is used primarily in the morning, with little or no use during the day, then reset the timer to 1 1/2 or 2 hours to insure complete incineration. (See page 8.)

Ash is not suitable to use as fertilizer or compost. It should be disposed of in household trash – just as you would with any other ash waste.

**Party Stress** For times when you are having a party or house guests, when the INCINOLET may have to serve more than the stated capacity for a short time, follow these tips:

1. Empty the ashpan before guests arrive.
2. Be sure guests are instructed as to proper use and that a *bowl liner is required for each and every use.*
3. Push button after each use and check occasionally to be sure it's not over filled.
4. You may need to run an extra cycle or two to insure complete burn.

## HOW TO INSTALL INCINOLET

1. Remove all packing materials – including cardboard inside ashpan panel.
2. Set unit on level floor in desired position:  
Allow clearance at rear for wiring and vent-line connection. Allow at least 2" on left side and plenty of room on the right side to operate foot pedal.
3. Prepare electrical supply within 4 feet of toilet location.
4. Install mounting plate to floor (RV and WB only).
5. Connect vent-line.
6. Plug INCINOLET into the proper receptacle on a 20-amp circuit. Dedicated circuit recommended.

### Preparing Vent-Line

Vent pipe can run horizontally or vertically. Venting materials can be placed within a wall and INCINOLET can be placed close to a wall at the back. Allow 6 to 8 inches on the right side (facing the toilet) to operate the foot pedal.

Vertical vent-line should terminate with a rain cap. For horizontal venting use a dryer flap or add a PVC elbow turned downward to prevent back-drafting.

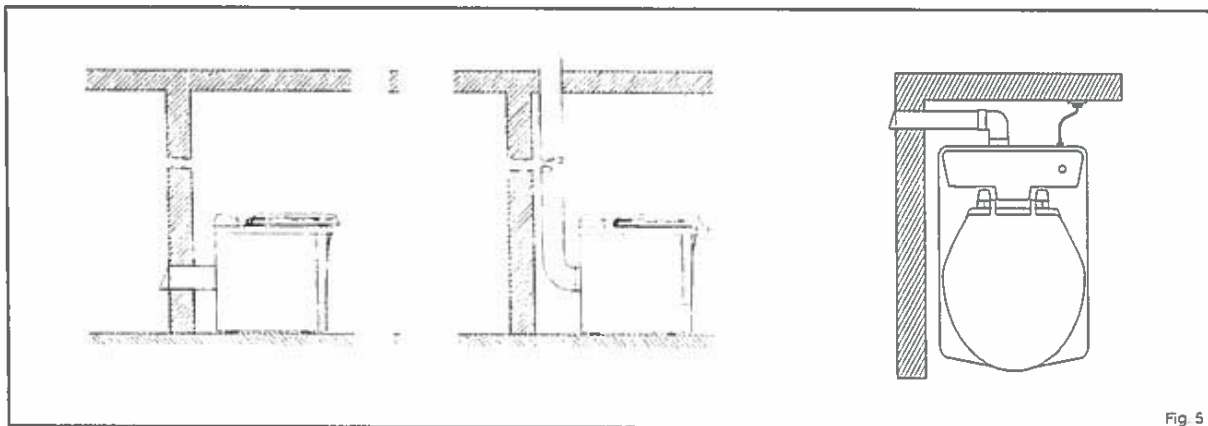


Fig. 5

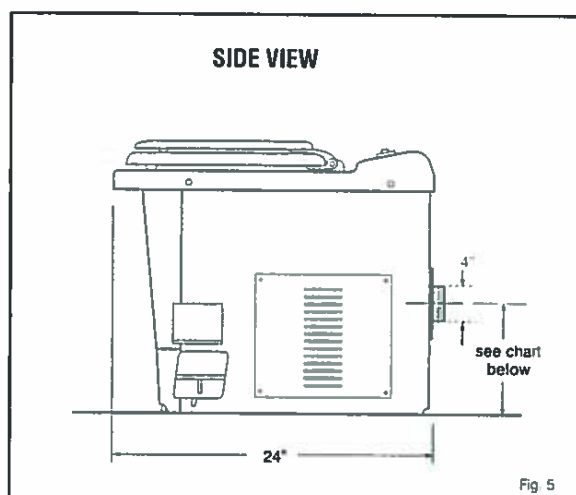
For proper operation, vent-line must be as straight as possible with a minimum of elbows. Maximum length of pipe at the 4" diameter is 20 feet plus 2 elbows. Use larger diameter pipe for longer runs. Contact factory if you have questions about special installations.

For best performance, use the shortest possible run and a minimum number of elbows. Do not vent into an attic or crawl space. Assemble vent pipe pieces securely, gluing or taping all connections. Connect coupling and pipe to vent collar at the rear of the unit. Put a dryer flap or rain cap at outside of building to prevent back drafting.

**Center of vent collar on the back of INCINOLET varies by model.**  
**Use this chart to find the correct measurement for your toilet.**

**Center of vent hole –  
up from floor:**

Model CF	10"
Model RV	10 1/4"
Model TR	10 5/8"
Model WB, 120 v.	10 1/4"
Model WB, 240 v.	10 7/8"
Model WB, 208 v.	10 7/8"

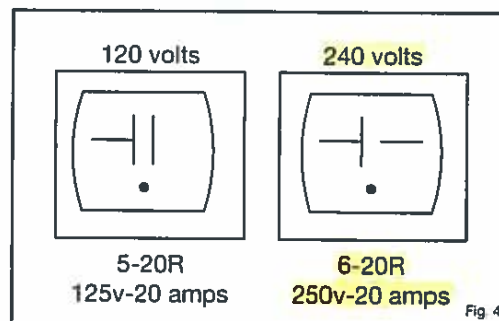


## Electrical Preparation

This appliance has a 20-amp plug and is meant to fit **only** into a 20-amp receptacle. (Fig. 4) If the outlet you intend to use for the INCINOLET is not the proper type, then change the receptacle. You must have a circuit suitable for 20 amps, headed by a 20-amp circuit breaker. Do not attempt to defeat this safety feature by modifying the plug in any way. Power cord is 4 feet long.

**Extension cords should not be used with this appliance.**

**START-UP PROCEDURE** - Once Incinolet is connected to vent line and plugged into a 20 amp receptacle on a 20 amp circuit of the appropriate voltage, it's a good idea to run a test cycle using a cup of water poured into a bowl liner.



## UNDERSTANDING ELECTRICAL OPERATION

1. Pushing the Start Button closes the Start Switch which engages a timer. Timer begins a new cycle each time start switch is closed. Timer doesn't accumulate time, merely starts over again.
2. Timer is set to 60 minutes at factory. Timer activates temperature controller. Controller output is connected to the coil of a Relay, which controls the electric current to the heater.
3. Temperature Controller responds to the output from a Thermocouple, which measures Heater temperature. When the temperature of the lower coil of the heater reaches approximately 1200 degrees F., controller shuts down the relay, which cuts off the heater. When heater temperature falls to about 1000 degrees F., controller again activates relay and heater comes on. Heater is off, then on, about twice a minute.
4. Timer also controls exhaust blower. Blower and heater come on and both stay on for 60 minutes together. After heater cuts off, blower continues on until incinerator area has cooled to about 130 degrees F.
5. Blower Thermostat (ITS) closes when it senses a temperature of 130 degrees F., and stays closed after the heating cycle is over, until incinerator temperature falls below 130 degrees F., about 30 to 50 minutes later.

## Power Consumption

One complete cycle uses about 1 1/2 to 2 kilowatt hours of electricity. Because you can use INCINOLET any time during the cycle, your "per use" cost is lower.

## During a Power Failure

If waste is burning in the INCINOLET when the electric service is interrupted, you may get smoke and odor in the room. Open a window to ventilate as best you can. When power comes back on, the fan should start automatically, if needed, and run until unit is cool enough. Heater does not come on until you push the button. You can push foot pedal to check contents of ashpan then start a cycle if needed.

## To Interrupt an Incineration Cycle

In normal use, it is never necessary to stop a cycle to add waste. (See "How to Use", page 3.) However, on rare occasions (doing repairs, etc.), you may want to stop a cycle in progress. Turn the circuit breaker off momentarily (or unplug INCINOLET) to cancel the cycle. Then turn the circuit breaker back on (or plug in INCINOLET) so that the toilet is ready for use. If unit is hot enough to need it, the blower should come back on automatically to cool it. NOTE: If blower does not come on, smoke and odor may come directly into room. In this case, you may want to start the cycle again for a few minutes to finish burning off the waste remaining in the ashpan.

## Thermostats

Your INCINOLET is equipped with three thermostats.

1. SAFETY THERMOSTATS (STS) shuts heater off if air temperature inside toilet reaches about 145°F. It is located on the front surface of the control box at the upper right rear of the unit. To replace, disconnect voltage, remove top of unit, disconnect lead wires to old thermostat, and replace. (Fig. 9)
2. BLOWER THERMOSTAT (ITS) turns fan off when outside skin of chamber cools to 130°F and will turn fan on again if temperature increases. It is accessible through access panel opening, just to the left of the heater terminals. To replace, follow same procedure as for STS above. (Fig. 12)
3. LIMIT THERMOSTAT (TS) turns heater off if skin of chamber reaches a temperature of 325°F. It is located below the ITS blower thermostat and heater terminals, outside ashpan compartment. To replace, follow same instructions as for other thermostats. (Fig. 12)

# CARE AND CLEANING

Keep your INCINOLET clean to prevent odors.

- Empty ashpan when ash is about 1/2 inch deep. **EXCESSIVE ASH BUILD-UP CAUSES ODOR, SHORTENS HEATER LIFE, AND DECREASES EFFICIENCY.** If ash is caked and hard to remove, just soak insert pan for a few minutes in warm water.
- Wipe up urine spills as they happen.
- **Every 6 months** – clean blower wheel and inside of INCINOLET.
  1. Unplug unit and remove top. (See instructions below.)
  2. Clean inside with a detergent or a spray cleaner such as Formula 409. (Do not use pine oil cleaners.)
  3. Remove blower wheel and clean. (See page 10.)
  4. **DO NOT STEAM CLEAN.**
  5. Stainless steel polish can be used on outside surfaces to keep INCINOLET's finish lustrous.

**TIP:** If blower becomes noisy or vibrates, clean or replace blower wheel. (See page 10.)

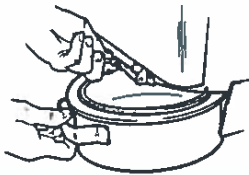
## Bowl Liners

**BE SURE** that the top edges of the liner are below the lid when it closes. Otherwise, paper will burn outside the chamber and cause momentary smoke and odor. **CAUTION:** Failure to use bowl liner for each and every use will **always** cause odor and urine on the floor.

Bowl liners are made of a special paper coated with polyethylene film. This liner is necessary to catch and contain the waste, then convey it into the incineration chamber. **USE A BOWL LINER FOR EACH AND EVERY USE.** Liner protects the bowl and prevents urine from draining to the floor.

## How to Remove Ashpan

Remove ashpan only when pan is cool and toilet is not operating.



### TO REMOVE ASHPAN

Remove ashpan panel.  
Raise camloc handle and unhook it from ashpan handle. Pull ashpan out. Empty ash in garbage.

**CAUTION: ASHPAN MUST BE SECURELY IN PLACE FOR PROPER OPERATION.**



### TO REPLACE ASHPAN

Push ashpan firmly into place.



Lift up on ashpan handle and engage hook of camloc under ashpan handle.



Push down on camloc handle. Replace ashpan panel.

Fig. 7

## Removing the Top (Seat, Lid, Bowl Halves)

Top is held in place with four screws, two per side and a rubber boot which protects the start button. Remove them, and then lift top up.

To replace top: With incinerator lid closed, hold bowl halves together and lower top into position. Replace four screws and rubber boot over start button. **Tip:** If you have trouble holding bowl halves in closed position while placing it back on toilet, just use a small piece of masking tape to hold them together, then slice through it from the top later.

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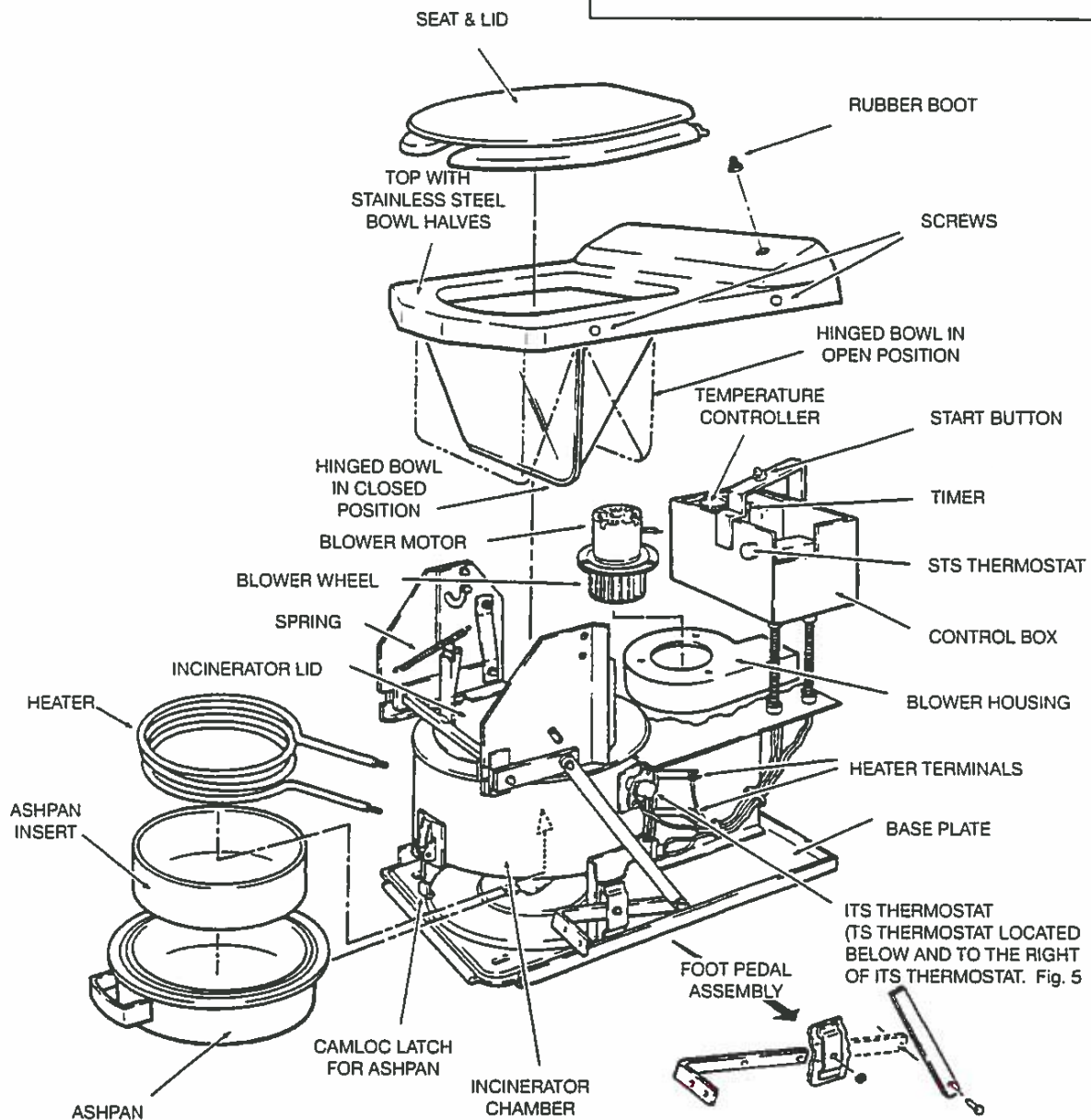
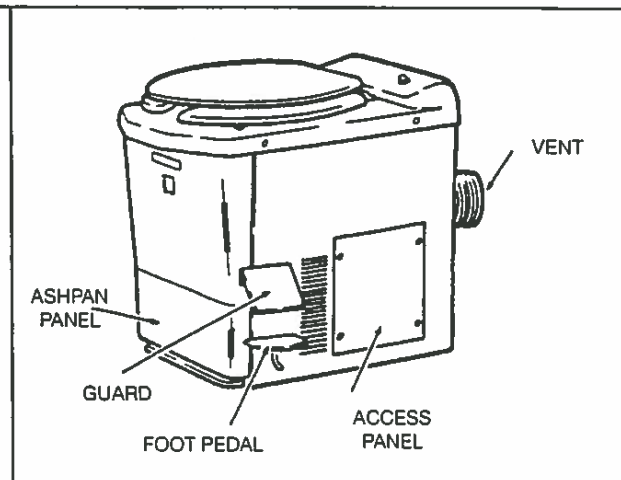
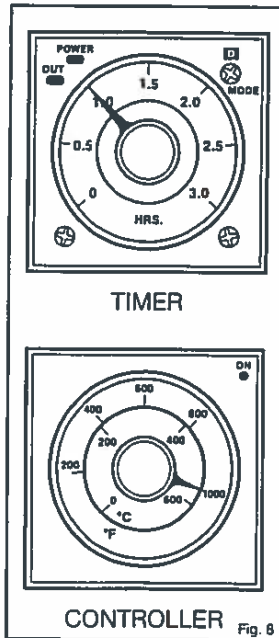


Fig 9



# TROUBLESHOOTING



## TIMER & TEMPERATURE CONTROLLER THE KEY TO TROUBLESHOOTING

Timer limits heating cycle, Controller limits heater temperature. Timer and temperature controller are within control box in upper right corner of housing, accessible with top removed. Timer has two lights: green and red. Temperature controller has one red light. A steady green light on timer indicates unit has power and is ready for operation. When start button is pushed, green light begins blinking and the red light comes on and stays on for a timed interval, during which time temperature controller is activated and its red light is on. Controller red light means that the relay is activated and supplying power to heater. Controller red light stays on until timer cuts off after the timed interval, or heater reaches maximum allowed temperature and thermocouple signals controller to open relay. In actual operation, when timer reaches end of timed

interval, its red light goes off, and blinking green light turns steady again. During the timed interval, controller red light will be on constantly until heater reaches about 1200 degrees F, at which point controller red light goes off and the relay opens. Controller red light comes on again after 30 seconds or so, stays on for about 40 seconds, then goes off again, and so on until the end of timed interval.

### TIMER ADJUSTMENT: (See Fig. 8.)

Timer dial reads 0 to 3 hrs. Timer pointer is set to 1.0 hrs. If INCINOLET is used primarily for solids deposits in rapid succession and incineration is incomplete, move pointer to 2.0 hrs. If used throughout the day, both for urine and solids, timer would be best set at 1.0 hr. To adjust timer, remove top of toilet and turn dial so timer reads new setting. (See p. 7.) Replace top. **DON'T MAKE ANY ADJUSTMENT REQUIRING SCREWDRIVER.**

### BLOWER COMES ON BUT HEATER DOESN'T HEAT

Remove top, examine timer and controller as above. If both timer and controller lights are on, then heater has failed. To verify, remove access panel, measure voltage directly across heater terminals, not from terminal to ground. If voltage appears, REPLACE HEATER. If no voltage appears, check circuit further.

### TIMER LIGHTS WORK BUT CONTROLLER RED LIGHT IS NOT ON

Test thermocouple. Unplug toilet, remove side access panel. Remove wire nuts from thermocouple leads (#6 & #7). Twist the gray and purple wires together, then plug unit in and push start button. If controller red light comes on, REPLACE THERMOCOUPLE.

### CIRCUIT BREAKER OPENS WHEN START BUTTON IS PUSHED

This indicates heater may be shorted to ground. Unplug toilet, remove access panel. Remove orange lead wires to heater terminals. Again push start button. If blower comes on and circuit breaker does not open, heater is shorted. REPLACE HEATER.

Unplug toilet, examine all wiring which might be grounded by touching housing. REPLACE OR TAPE ANY BARE WIRES.

### NOTHING COMES ON, BUT TIMER GREEN LIGHT IS ON

Inspect timer lights as you push start button. Red lights should come on, green light should begin blinking. If not, CHECK START SWITCH OR REPLACE TIMER.

### BLOWER, HEATER WON'T STAY ON

If timer, blower and heater come on when start button is pushed but turn off as soon as start button is released, REPLACE TIMER.

### BLOWER STOPS AT END OF HEATING CYCLE

Blower should be on from 30 to 55 minutes after heater cuts off. Unplug toilet, remove access panel, inspect for and tighten any loose wiring. REPLACE BLOWER THERMOSTAT.

### BLOWER DOES NOT OPERATE

Blower must come on immediately when start button is pushed and should not stop while heater is on. If not, check blower wheel to be sure it's not binding. Listen to blower motor for a humming sound (like motor is trying to start). This would indicate bad motor bearings. REPLACE BLOWER MOTOR

### BLOWER OFF & ON AT CYCLE END

It is normal for blower to stop for 4 or 5 minutes, then start again for a few minutes, a couple of times at end of cycle. If, however, blower stops and starts rapidly, blower (ITS) thermostat is faulty. REPLACE ITS THERMOSTAT

### BOWL HANGS OPEN:

#### PEDAL WON'T RETURN

1. Closing mechanism may be out of adjustment.
2. Foot pedal goes too far down and locks up. Place block under foot pedal to prevent excess travel.

### EXCESSIVE NOISE, VIBRATION CLEAN OR REPLACE BLOWER WHEEL.

### INCOMPLETE INCINERATION

Can be any one of several causes:

1. Start button not pushed after each use.
2. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
3. Too many people using toilet.
4. Burn cycle too short. Add more time to the timer.

### ODOR WITHIN ROOM

Can be any one of several causes:

1. Failure to use bowl liner each and every time or careless use of liner.
2. Solids not completely incinerated. May need more time on timer or additional incineration cycles.
3. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
4. Back-drafting. Use back-draft preventer on horizontal vent-line or run the vent vertically with a rain cap at the top.

### ODOR OUTSIDE

Causes same as above, plus:

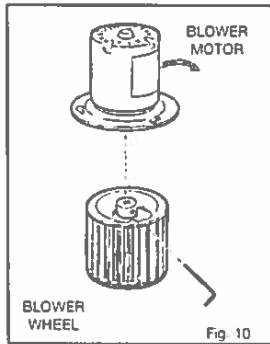
1. Catalyst port perforations are clogged. Clean chamber wall behind heater coil with small brush.
2. Catalyst has "set". Stir with small rod to loosen. (See catalyst p. 11.)
3. Incinerator lid hanging open, allowing odor to escape.

### RESIDUE BLACK, LIKE CHARCOAL

Ash should be white to gray. Black lumps means insufficient air is being drawn into chamber. There may also be soot around ashpan lip at front and on inside of ashpan panel. Remove ashpan and use small brush to clean perforations in inner incinerator wall back of heating coils.

# MAINTENANCE AND REPAIRS

## Clean Blower Wheel



Blower draws fresh air into toilet to provide oxygen for the burn, carries smoke and odor into the catalyst, then exhausts moist air outside. Clean blower wheel and housing every 90 days, or any time excessive noise and vibration occur.

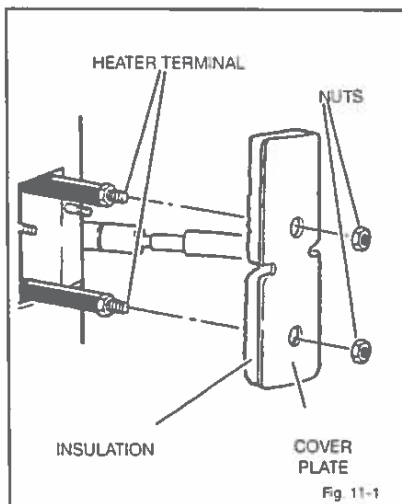
1. Remove top of INCINOLET.
2. Disconnect two wires on side of control box to free motor.
3. Loosen (no need to remove) 3 screws holding blower motor plate. (Fig. 10). Twist and lift motor over screw slots to remove it.
4. Use 1/8" Allen wrench to remove set screw in wheel hub.
5. Clean grease and dirt from wheel with hot soapy water or a degreasing cleaner.
6. Replace wheel if corroded or if vibration indicates it is out of balance.
7. Clean inside of blower housing occasionally.

## Replace Heater

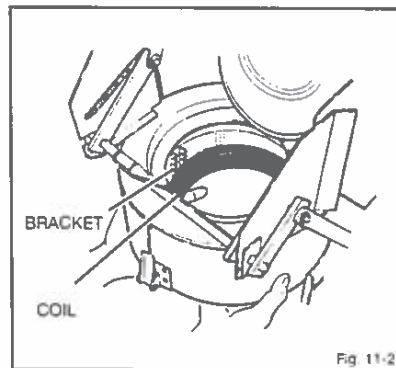
**Note:** For maximum heater life incinerate after each use, and keep ash level down to no more than 1/2 inch.

### To Remove Old Heater:

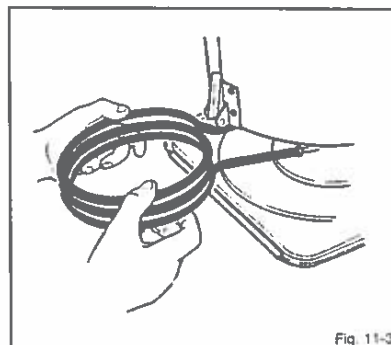
- Turn off voltage to INCINOLET. Remove ashpan. Remove access panel. Remove top. Hold incinerator open either by wedging down the foot pedal or blocking flushing mechanism in open position.
- Remove thermocouple but do not disconnect. (Fig. 12)
- Disconnect wiring to heater terminals. Remove cover plate and insulation around heater terminals. (Fig. 11-1)



- Push up on heater coils to clear heater brackets. (Fig. 11-2)



- Remove heater through ashpan opening. (Fig. 11-3)  
Note: Brackets may be wedged tightly in slots in wall. It is okay to remove brackets, but not absolutely necessary.



### To Install New Heater:

- Reverse above procedure. Locate heater in brackets, making sure brackets are seated in slots in the incinerator wall. (Fig. 11-2)  
**IMPORTANT:** Locate heater at lowest position in heater bracket. Coils must not touch each other.
- Replace insulation and cover over heater terminals. (Fig. 11-1)
- On new heater coil, remove nut and only 1 of the 2 new washers. Slip heater wire's connector over the terminal, then the 2nd new washer and a nut. It is best to reuse the original lock nut, but the new nut can be used if needed. Always use the new washers, one on either side of the heater wire connector.
- **CAREFULLY** tighten nut, using two (2) end wrenches to prevent twisting the heater stud terminals, which would break the moisture seal at end of heater (Fig. 11-1).
- Replace thermocouple. Push knurled cylinder to compress spring. Turn to engage stud, then release. Spring must be compressed to insure that tip of thermocouple contacts outer surface of heater. (See p. 11.)
- Replace access panel, ashpan, top. Close circuit breaker.
- Start cycle to test heater and total operation.



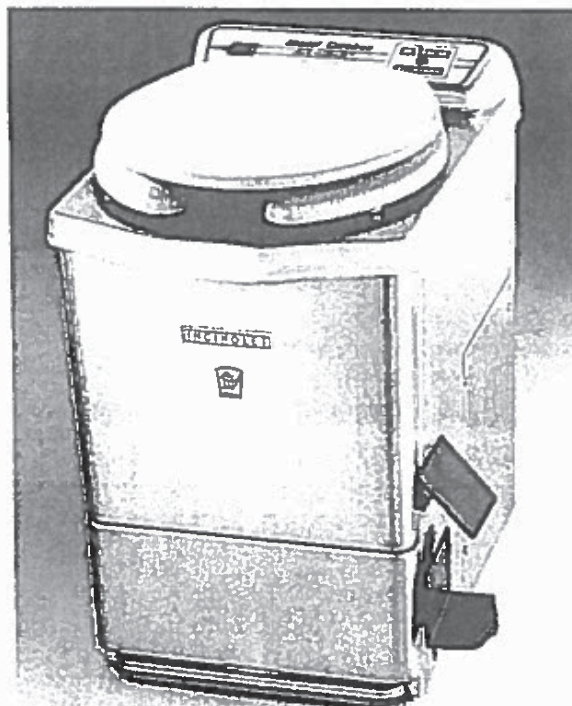




**INCINOLET®**  
ELECTRIC INCINERATING TOILET

## INSTALLATION / MAINTENANCE MANUAL

All Models



NSF Product PB  
Electrical Incinerating Toilet - Health and Sanitation  
(meets 1992 edition of NSF Standard 41)

**CALL TOLL FREE  
NATIONWIDE**

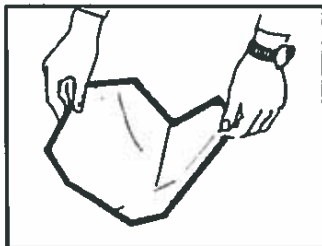
**1-800-263-0379**

Fax: (519) 938-9214  
Email: [incinolet@rogers.com](mailto:incinolet@rogers.com)  
Web: [www.incinolet.ca](http://www.incinolet.ca)

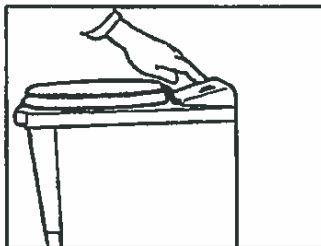
**WARNING:** Do not operate INCINOLET until you have read thoroughly and understand completely all instructions and safety rules contained in this manual. Save this manual and review frequently for continuing safe operation, and instructing possible third-party users.

***For questions or assistance call 1-800-263-0379***

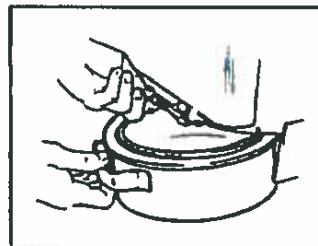
## Tips for Success



Use a bowl liner for each and every use.



Push button to start after each use.



Empty ashpan OFTEN – when ash is 1/2 inch deep

Fig. 1

## How INCINOLET Works

When you push the start button, heater and blower both come on. Heater alternates off and on for an hour. Blower stays on for an additional 30 to 55 minutes. **YOU CAN USE INCINOLET ANY TIME DURING THE INCINERATION CYCLE.** Push start button after each use.

**YOU SHOULD INCINERATE WASTE AFTER EACH USE. ACCUMULATED WASTE, PARTICULARLY SOLIDS, RESULTS IN ODOR AND CAN REDUCE LIFE OF THE HEATER.**

If INCINOLET is used primarily in the morning, with little or no use during the day, then reset the timer to 1 1/2 or 2 hours to insure complete incineration. (See page 8.)

Ash is not suitable to use as fertilizer or compost. It should be disposed of in household trash – just as you would with any other ash waste.

**Party Stress** For times when you are having a party or house guests, when the INCINOLET may have to serve more than the stated capacity for a short time, follow these tips:

1. Empty the ashpan before guests arrive.
2. Be sure guests are instructed as to proper use and that a *bowl liner is required for each and every use.*
3. Push button after each use and check occasionally to be sure it's not over filled.
4. You may need to run an extra cycle or two to insure complete burn.

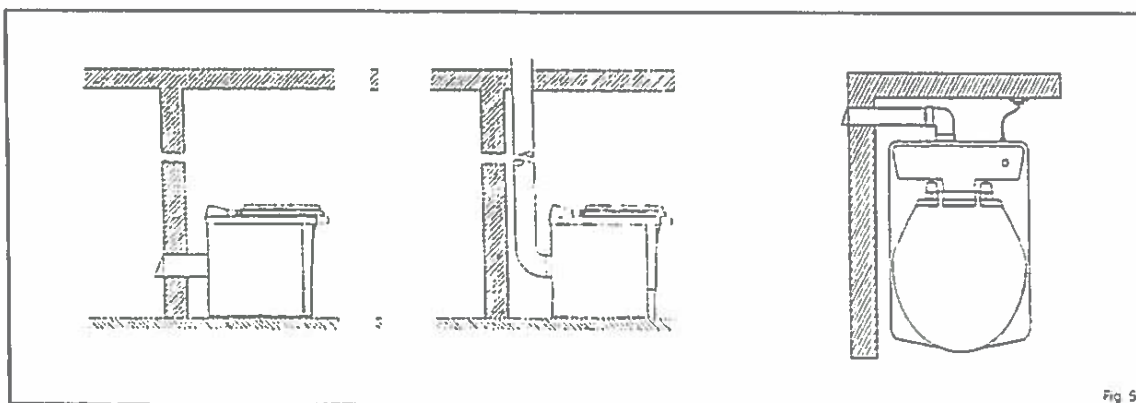
## HOW TO INSTALL INCINOLET

1. Remove all packing materials – including cardboard inside ashpan panel.
2. Set unit on level floor in desired position:  
Allow clearance at rear for wiring and vent-line connection. Allow at least 2" on left side and plenty of room on the right side to operate foot pedal.
3. Prepare electrical supply within 4 feet of toilet location.
4. Install mounting plate to floor (RV and WB only).
5. Connect vent-line.
6. Plug INCINOLET into the proper receptacle on a 20-amp circuit. Dedicated circuit recommended.

### Preparing Vent-Line

Vent pipe can run horizontally or vertically. Venting materials can be placed within a wall and INCINOLET can be placed close to a wall at the back. Allow 6 to 8 inches on the right side (facing the toilet) to operate the foot pedal.

Vertical vent-line should terminate with a rain cap. For horizontal venting use a dryer flap or add a PVC elbow turned downward to prevent back-drafting.



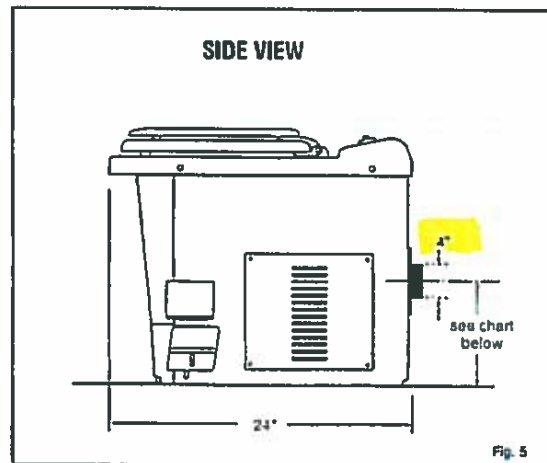
For proper operation, vent-line must be as straight as possible with a minimum of elbows. Maximum length of pipe at the 4" diameter is 20 feet plus 2 elbows. Use larger diameter pipe for longer runs. Contact factory if you have questions about special installations.

For best performance, use the shortest possible run and a minimum number of elbows. Do not vent into an attic or crawl space. Assemble vent pipe pieces securely, gluing or taping all connections. Connect coupling and pipe to vent collar at the rear of the unit. Put a dryer flap or rain cap at outside of building to prevent back drafting.

**Center of vent collar on the back of INCINOLET varies by model.  
Use this chart to find the correct measurement for your toilet.**

**Center of vent hole –  
up from floor:**

Model CF	10"
Model RV	10 1/4"
Model TR	10 5/8"
Model WB, 120 v.	10 1/4"
Model WB, 240 v.	10 7/8"
Model WB, 208 v.	10 7/8"

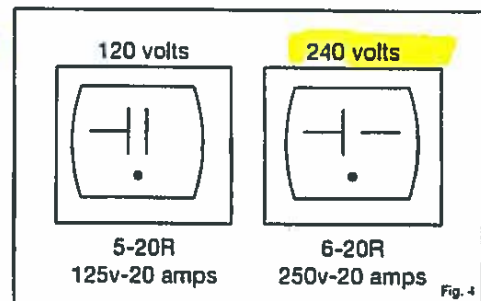


## Electrical Preparation

This appliance has a 20-amp plug and is meant to fit only into a 20-amp receptacle. (Fig. 4) If the outlet you intend to use for the INCINOLET is not the proper type, then change the receptacle. You must have a circuit suitable for 20 amps, headed by a 20-amp circuit breaker. Do not attempt to defeat this safety feature by modifying the plug in any way. Power cord is 4 feet long.

**Extension cords should not be used with this appliance.**

**START-UP PROCEDURE** - Once Incinolet is connected to vent line and plugged into a 20 amp receptacle on a 20 amp circuit of the appropriate voltage, it's a good idea to run a test cycle using a cup of water poured into a bowl liner.



## UNDERSTANDING ELECTRICAL OPERATION

1. Pushing the Start Button closes the Start Switch which engages a timer. Timer begins a new cycle each time start switch is closed. Timer doesn't accumulate time, merely starts over again.
2. Timer is set to 60 minutes at factory. Timer activates temperature controller. Controller output is connected to the coil of a Relay, which controls the electric current to the heater.
3. Temperature Controller responds to the output from a Thermocouple, which measures Heater temperature. When the temperature of the lower coil of the heater reaches approximately 1200 degrees F., controller shuts down the relay, which cuts off the heater. When heater temperature falls to about 1000 degrees F., controller again activates relay and heater comes on. Heater is off, then on, about twice a minute.
4. Timer also controls exhaust blower. Blower and heater come on and both stay on for 60 minutes together. After heater cuts off, blower continues on until incinerator area has cooled to about 130 degrees F.
5. Blower Thermostat (ITS) closes when it senses a temperature of 130 degrees F., and stays closed after the heating cycle is over, until incinerator temperature falls below 130 degrees F., about 30 to 50 minutes later.

## Power Consumption

One complete cycle uses about 1 1/2 to 2 kilowatt hours of electricity. Because you can use INCINOLET any time during the cycle, your "per use" cost is lower.

## During a Power Failure

If waste is burning in the INCINOLET when the electric service is interrupted, you may get smoke and odor in the room. Open a window to ventilate as best you can. When power comes back on, the fan should start automatically, if needed, and run until unit is cool enough. Heater does not come on until you push the button. You can push foot pedal to check contents of ashpan then start a cycle if needed.

## To Interrupt an Incineration Cycle

In normal use, it is never necessary to stop a cycle to add waste. (See "How to Use", page 3.) However, on rare occasions (doing repairs, etc.), you may want to stop a cycle in progress. Turn the circuit breaker off momentarily (or unplug INCINOLET) to cancel the cycle. Then turn the circuit breaker back on (or plug in INCINOLET) so that the toilet is ready for use. If unit is hot enough to need it, the blower should come back on automatically to cool it. NOTE: If blower does not come on, smoke and odor may come directly into room. In this case, you may want to start the cycle again for a few minutes to finish burning off the waste remaining in the ashpan.

## Thermostats

Your INCINOLET is equipped with three thermostats.

1. SAFETY THERMOSTATS (STS) shuts heater off if air temperature inside toilet reaches about 145°F. It is located on the front surface of the control box at the upper right rear of the unit. To replace, disconnect voltage, remove top of unit, disconnect lead wires to old thermostat, and replace. (Fig. 9)
2. BLOWER THERMOSTAT (ITS) turns fan off when outside skin of chamber cools to 130°F and will turn fan on again if temperature increases. It is accessible through access panel opening, just to the left of the heater terminals. To replace, follow same procedure as for STS above. (Fig. 12)
3. LIMIT THERMOSTAT (TS) turns heater off if skin of chamber reaches a temperature of 325°F. It is located below the ITS blower thermostat and heater terminals, outside ashpan compartment. To replace, follow same instructions as for other thermostats. (Fig. 12)

## CARE AND CLEANING

Keep your INCINOLET clean to prevent odors.

- Empty ashpan when ash is about 1/2 inch deep. **EXCESSIVE ASH BUILD-UP CAUSES ODOR, SHORTENS HEATER LIFE, AND DECREASES EFFICIENCY.** If ash is caked and hard to remove, just soak insert pan for a few minutes in warm water.
- Wipe up urine spills as they happen.
- **Every 6 months** – clean blower wheel and inside of INCINOLET.
  1. Unplug unit and remove top. (See instructions below.)
  2. Clean inside with a detergent or a spray cleaner such as Formula 409. (Do not use pine oil cleaners.)
  3. Remove blower wheel and clean. (See page 10.)
  4. **DO NOT STEAM CLEAN.**
  5. Stainless steel polish can be used on outside surfaces to keep INCINOLET's finish lustrous.

**TIP:** If blower becomes noisy or vibrates, clean or replace blower wheel. (See page 10.)

### Bowl Liners

**BE SURE** that the top edges of the liner are below the lid when it closes. Otherwise, paper will burn outside the chamber and cause momentary smoke and odor. **CAUTION:** Failure to use bowl liner for each and every use will always cause odor and urine on the floor.

Bowl liners are made of a special paper coated with polyethylene film. This liner is necessary to catch and contain the waste, then convey it into the incineration chamber. **USE A BOWL LINER FOR EACH AND EVERY USE.** Liner protects the bowl and prevents urine from draining to the floor.

### How to Remove Ashpan

Remove ashpan only when pan is cool and toilet is not operating.

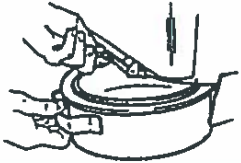

	<p><b>TO REMOVE ASHPAN</b> Remove ashpan panel. Raise camloc handle and unhook it from ashpan handle. Pull ashpan out. Empty ash in garbage.</p>		<p><b>TO REPLACE ASHPAN</b> Push ashpan firmly into place.  Lift up on ashpan handle and engage hook of camloc under ashpan handle.  Push down on camloc handle. Replace ashpan panel.</p>
<p><b>CAUTION: ASHPAN MUST BE SECURELY IN PLACE FOR PROPER OPERATION.</b></p>			

Fig. 7

### Removing the Top (Seat, Lid, Bowl Halves)

Top is held in place with four screws, two per side and a rubber boot which protects the start button. Remove them, and then lift top up.

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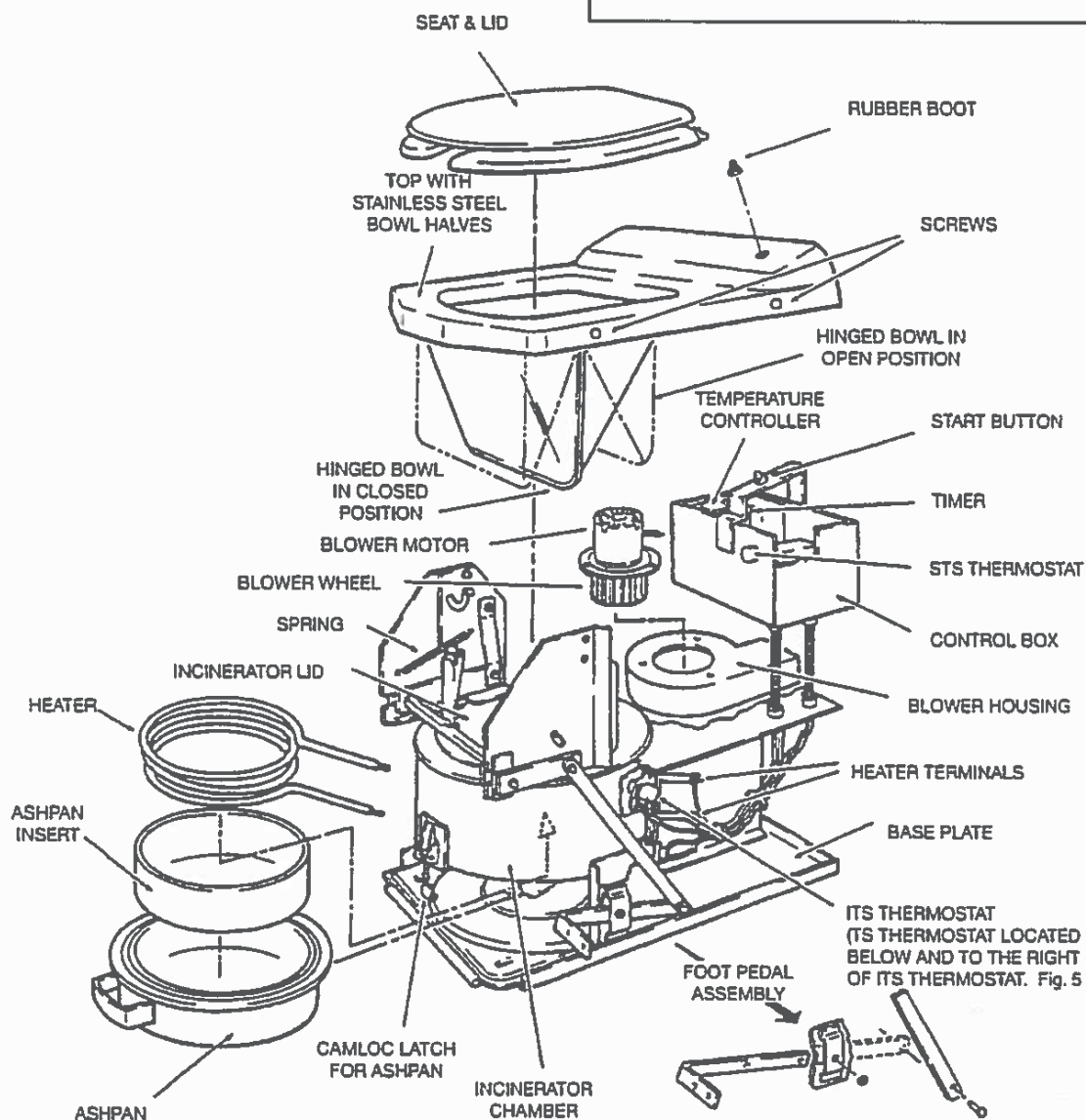
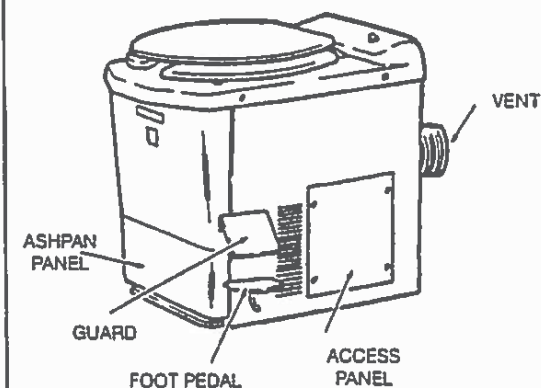
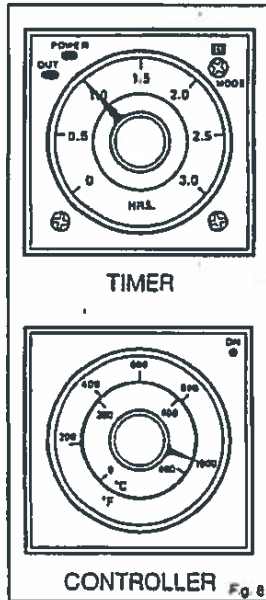


Fig. 9



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Remove top, examine timer and controller as above. If both timer and controller lights are on, then heater has failed. To verify, remove access panel, measure voltage directly across heater terminals, not from terminal to ground. If voltage appears, **REPLACE HEATER**. If no voltage appears, check circuit further.

### TIMER LIGHTS WORK BUT CONTROLLER RED LIGHT IS NOT ON

Test thermocouple. Unplug toilet, remove side access panel. Remove wire nuts from thermocouple leads (#6 & #7). Twist the gray and purple wires together, then plug unit in and push start button. If controller red light comes on, **REPLACE THERMOCOUPLE**.

### CIRCUIT BREAKER OPENS WHEN START BUTTON IS PUSHED

This indicates heater may be shorted to ground. Unplug toilet, remove access panel. Remove orange lead wires to heater terminals. Again push start button. If blower comes on and circuit breaker does not open, heater is shorted. **REPLACE HEATER**

Unplug toilet, examine all wiring which might be grounded by touching housing. **REPLACE OR TAPE ANY BARE WIRES.**

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#### PEDAL WON'T RETURN

1. Closing mechanism may be out of adjustment.
2. Foot pedal goes too far down and locks up. Place block under foot pedal to prevent excess travel.

### EXCESSIVE NOISE, VIBRATION

**CLEAN OR REPLACE BLOWER WHEEL.**

### INCOMPLETE INCINERATION

Can be any one of several causes:

1. Start button not pushed after each use.
2. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
3. Too many people using toilet.
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1. Failure to use bowl liner each and every time or careless use of liner.
2. Solids not completely incinerated. May need more time on timer or additional incineration cycles.
3. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
4. Back-drafting. Use back-draft preventer on horizontal vent-line or run the vent vertically with a rain cap at the top.

### ODOR OUTSIDE

Causes same as above, plus:

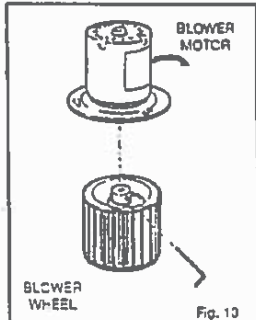
1. Catalyst port perforations are clogged. Clean chamber wall behind heater coil with small brush.
2. Catalyst has "set". Stir with small rod to loosen. (See catalyst p. 11.)
3. Incinerator lid hanging open, allowing odor to escape.

### RESIDUE BLACK, LIKE CHARCOAL

Ash should be white to gray. Black lumps means insufficient air is being drawn into chamber. There may also be soot around ashpan lip at front and on inside of ashpan panel. Remove ashpan and use small brush to clean perforations in inner incinerator wall back of heating coils.

## MAINTENANCE AND REPAIRS

### Clean Blower Wheel



Blower draws fresh air into toilet to provide oxygen for the burn, carries smoke and odor into the catalyst, then exhausts moist air outside. Clean blower wheel and housing every 90 days, or any time excessive noise and vibration occur.

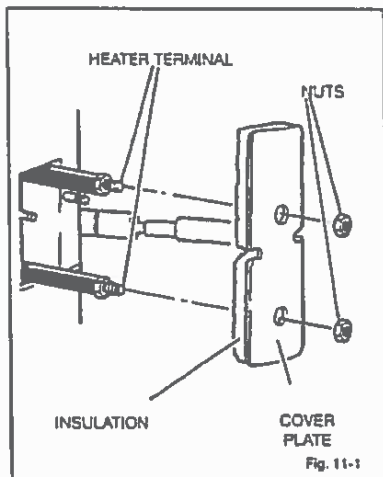
1. Remove top of INCINOLET.
2. Disconnect two wires on side of control box to free motor.
3. Loosen (no need to remove) 3 screws holding blower motor plate. (Fig. 10). Twist and lift motor over screw slots to remove it.
4. Use 1/8" Allen wrench to remove set screw in wheel hub.
5. Clean grease and dirt from wheel with hot soapy water or a degreasing cleaner.
6. Replace wheel if corroded or if vibration indicates it is out of balance.
7. Clean inside of blower housing occasionally.

### Replace Heater

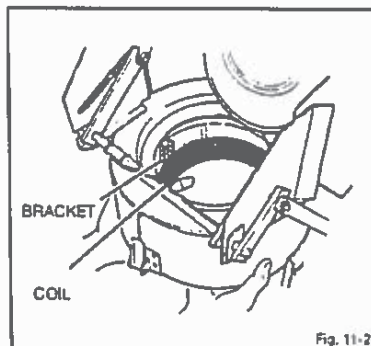
**Note:** For maximum heater life incinerate after each use, and keep ash level down to no more than 1/2 inch.

#### To Remove Old Heater:

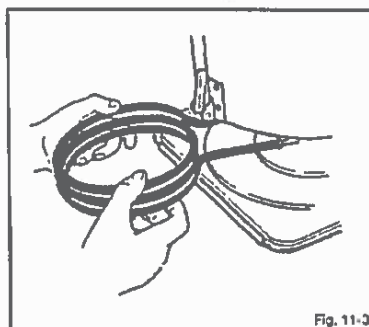
- Turn off voltage to INCINOLET. Remove ashpan. Remove access panel. Remove top. Hold incinerator open either by wedging down the foot pedal or blocking flushing mechanism in open position.
- Remove thermocouple but do not disconnect. (Fig. 12)
- Disconnect wiring to heater terminals. Remove cover plate and insulation around heater terminals. (Fig. 11-1)



- Push up on heater coils to clear heater brackets. (Fig. 11-2)



- Remove heater through ashpan opening. (Fig. 11-3)  
**Note:** Brackets may be wedged tightly in slots in wall. It is okay to remove brackets, but not absolutely necessary.



#### To Install New Heater:

- Reverse above procedure. Locate heater in brackets, making sure brackets are seated in slots in the incinerator wall. (Fig. 11-2)  
**IMPORTANT:** Locate heater at lowest position in heater bracket. Coils must not touch each other.
- Replace insulation and cover over heater terminals. (Fig. 11-1)
- On new heater coil, remove nut and only 1 of the 2 new washers. Slip heater wire's connector over the terminal, then the 2nd new washer and a nut. It is best to reuse the original lock nut, but the new nut can be used if needed. Always use the new washers, one on either side of the heater wire connector.
- **CAREFULLY** tighten nut, using two (2) end wrenches to prevent twisting the heater stud terminals, which would break the moisture seal at end of heater (Fig. 11-1).
- Replace thermocouple. Push knurled cylinder to compress spring. Turn to engage stud, then release. Spring must be compressed to insure that tip of thermocouple contacts outer surface of heater. (See p. 11.)
- Replace access panel, ashpan, top. Close circuit breaker.
- Start cycle to test heater and total operation.



## RESEARCH PRODUCTS/BLANKENSHIP

2639 ANDJON  
DALLAS TX 75220  
PHONE: (214)358-4238  
FAX: (214)350-7919

BATCH CODE

## PACKING LIST

ORDER NUMBER	ORDER DATE	PAGE
RESL4V	02/15/2017	1
CUSTOMER P.O. NUMBER		

S CANADIAN COAST GUARD  
H JACQUES DUBOIS (418-648-5194)  
I 101 BOUL CHAMPLAIN  
P QUEBEC QC G1K 7Y7 CANADA

T  
O

S RESL4V  
O INCINOLET PRODUCTS  
L IMPORTER # 89528-0766 RM  
D PO BOX 285  
ORANGEVILLE ON L9W 2Z7 CANADA

T  
O

#reception: 419063  
#entrep :

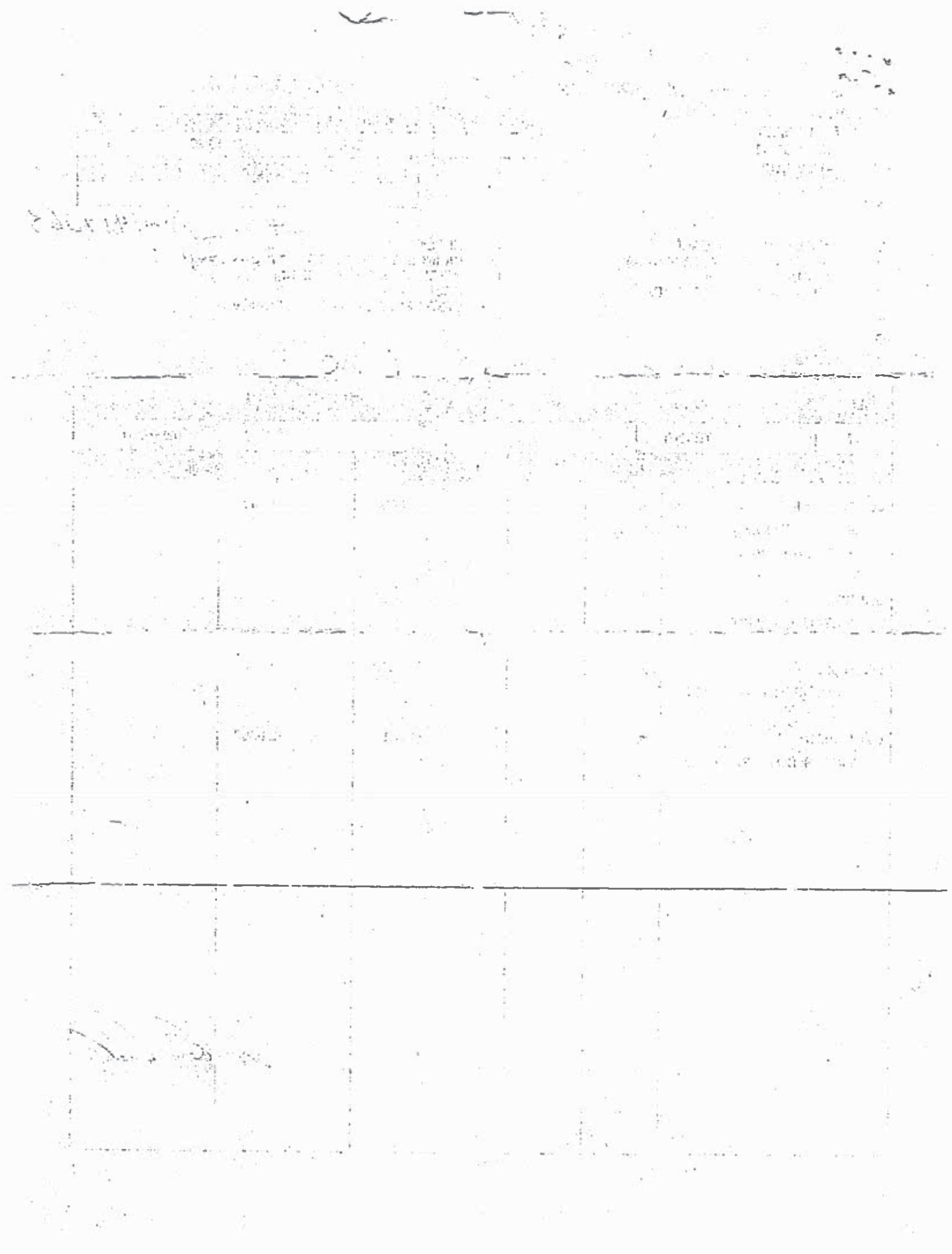
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SLS 1	SLS 2	LOCATION	SHIP VIA	PACKING LIST NO.	REQUESTED SHIP DATE	ACTUAL SHIP DATE
17		TEX001	R & L			02/17/2017
ITEM ID		UNIT OF MEASURE	BIN	ORDERED	SHIPPED	BACK ORDER
001 TR240WINC INCINOLET MODEL TR 240V. 3500W WHT SERIAL # 48910		EA		1.0000	1.0000	
002 KITD INSTALLATION KIT D		EA		1.0000	1.0000	
003 DIS001 DISPENSER, BOWL LINER, SS		EA		1.0000	1.0000	
004 LIN001 LINERS, BOWL BOX OF 200		EA		2.0000	2.0000	



13 FEB. 2017

*[Signature]*





## INSTALLATION / MAINTENANCE MANUAL

All Models



NSF Protocol P8  
Electrical Incinerating Toilets - Health and Sanitation  
(replaces 1993 edition of NSF Standard 41)

**CALL TOLL FREE  
NATIONWIDE**

**1-800-263-0379**

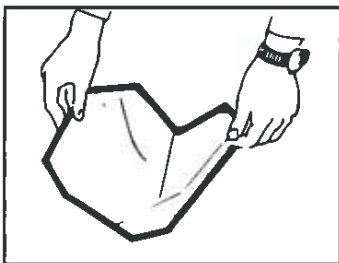
Fax: (519) 938-9214  
Email: [incinolet@rogers.com](mailto:incinolet@rogers.com)  
Web: [www.incinolet.ca](http://www.incinolet.ca)

**WARNING:** Do not operate INCINOLET until you have read thoroughly and understand completely all instructions and safety rules contained in this manual. Save this manual and review frequently for continuing safe operation, and instructing possible third-party users.

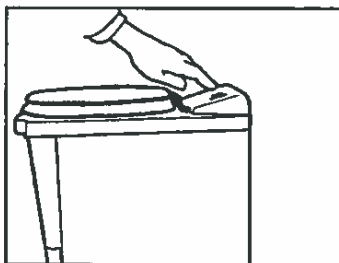
***For questions or assistance call 1-800-263-0379***



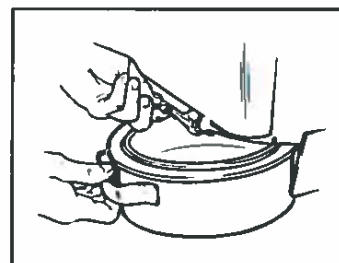
## Tips for Success



Use a bowl liner for each and every use.



Push button to start after each use.



Empty ashpan OFTEN – when ash is 1/2 inch deep

Fig 1

## How INCINOLET Works

When you push the start button, heater and blower both come on. Heater alternates off and on for an hour. Blower stays on for an additional 30 to 55 minutes. **YOU CAN USE INCINOLET ANY TIME DURING THE INCINERATION CYCLE.** Push start button after each use.

**YOU SHOULD INCINERATE WASTE AFTER EACH USE. ACCUMULATED WASTE, PARTICULARLY SOLIDS, RESULTS IN ODOR AND CAN REDUCE LIFE OF THE HEATER.**

If INCINOLET is used primarily in the morning, with little or no use during the day, then reset the timer to 1 1/2 or 2 hours to insure complete incineration. (See page 8.)

Ash is not suitable to use as fertilizer or compost. It should be disposed of in household trash – just as you would with any other ash waste.

**Party Stress** For times when you are having a party or house guests, when the INCINOLET may have to serve more than the stated capacity for a short time, follow these tips:

1. Empty the ashpan before guests arrive.
2. Be sure guests are instructed as to proper use and that a *bowl liner is required for each and every use.*
3. Push button after each use and check occasionally to be sure it's not over filled.
4. You may need to run an extra cycle or two to insure complete burn.

## HOW TO INSTALL INCINOLET

1. Remove all packing materials – including cardboard inside ashpan panel.
2. Set unit on level floor in desired position:  
Allow clearance at rear for wiring and vent-line connection. Allow at least 2" on left side and plenty of room on the right side to operate foot pedal.
3. Prepare electrical supply within 4 feet of toilet location.
4. Install mounting plate to floor (RV and WB only).
5. Connect vent-line.
6. Plug INCINOLET into the proper receptacle on a 20-amp circuit. Dedicated circuit recommended.

### Preparing Vent-Line

Vent pipe can run horizontally or vertically. Venting materials can be placed within a wall and INCINOLET can be placed close to a wall at the back. Allow 6 to 8 inches on the right side (facing the toilet) to operate the foot pedal.

Vertical vent-line should terminate with a rain cap. For horizontal venting use a dryer flap or add a PVC elbow turned downward to prevent back-drafting.

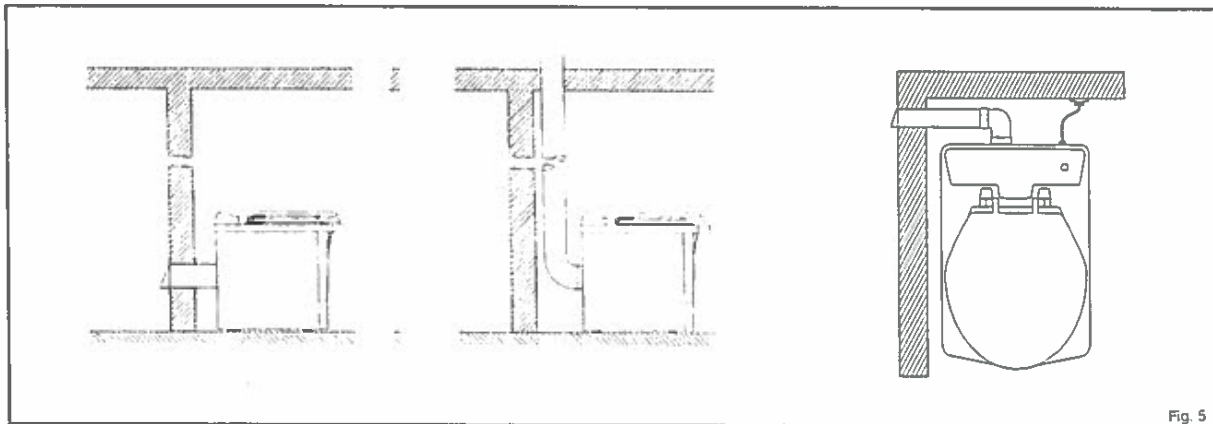


Fig. 5



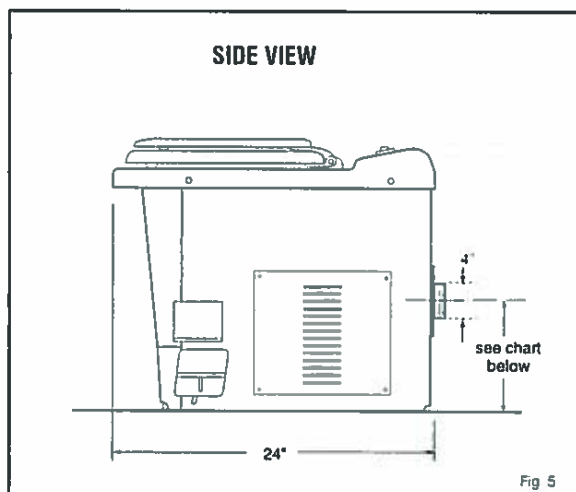
For proper operation, vent-line must be as straight as possible with a minimum of elbows. Maximum length of pipe at the 4" diameter is 20 feet plus 2 elbows. Use larger diameter pipe for longer runs. Contact factory if you have questions about special installations.

For best performance, use the shortest possible run and a minimum number of elbows. Do not vent into an attic or crawl space. Assemble vent pipe pieces securely, gluing or taping all connections. Connect coupling and pipe to vent collar at the rear of the unit. Put a dryer flap or rain cap at outside of building to prevent back drafting.

**Center of vent collar on the back of INCINOLET varies by model.**  
**Use this chart to find the correct measurement for your toilet.**

**Center of vent hole –  
up from floor:**

Model CF	10"
Model RV	10 1/4"
Model TR	10 5/8"
Model WB, 120 v.	10 1/4"
Model WB, 240 v.	10 7/8"
Model WB, 208 v.	10 7/8"



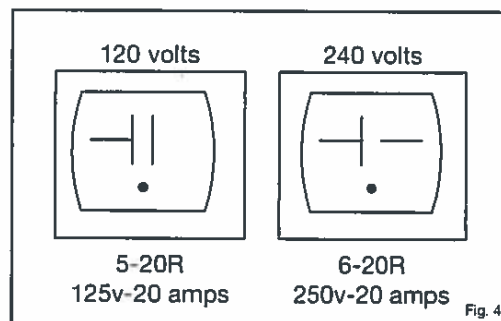
## Electrical Preparation

This appliance has a 20-amp plug and is meant to fit **only** into a 20-amp receptacle. (Fig. 4) If the outlet you intend to use for the INCINOLET is not the proper type, then change the receptacle. You must have a circuit suitable for 20 amps, headed by a 20-amp circuit breaker. Do not attempt to defeat this safety feature by modifying the plug in any way.

Power cord is 4 feet long.

**Extension cords should not be used with this appliance.**

**START-UP PROCEDURE** - Once Incinolet is connected to vent line and plugged into a 20 amp receptacle on a 20 amp circuit of the appropriate voltage, it's a good idea to run a test cycle using a cup of water poured into a bowl liner.



## UNDERSTANDING ELECTRICAL OPERATION

1. Pushing the Start Button closes the Start Switch which engages a timer. Timer begins a new cycle each time start switch is closed. Timer doesn't accumulate time, merely starts over again.
2. Timer is set to 60 minutes at factory. Timer activates temperature controller. Controller output is connected to the coil of a Relay, which controls the electric current to the heater.
3. Temperature Controller responds to the output from a Thermocouple, which measures Heater temperature. When the temperature of the lower coil of the heater reaches approximately 1200 degrees F., controller shuts down the relay, which cuts off the heater. When heater temperature falls to about 1000 degrees F., controller again activates relay and heater comes on. Heater is off, then on, about twice a minute.
4. Timer also controls exhaust blower. Blower and heater come on and both stay on for 60 minutes together. After heater cuts off, blower continues on until incinerator area has cooled to about 130 degrees F.
5. Blower Thermostat (ITS) closes when it senses a temperature of 130 degrees F., and stays closed after the heating cycle is over, until incinerator temperature falls below 130 degrees F., about 30 to 50 minutes later.

## Power Consumption

One complete cycle uses about 1 1/2 to 2 kilowatt hours of electricity. Because you can use INCINOLET any time during the cycle, your "per use" cost is lower.

## During a Power Failure

If waste is burning in the INCINOLET when the electric service is interrupted, you may get smoke and odor in the room. Open a window to ventilate as best you can. When power comes back on, the fan should start automatically, if needed, and run until unit is cool enough. Heater does not come on until you push the button. You can push foot pedal to check contents of ashpan then start a cycle if needed.

## To Interrupt an Incineration Cycle

In normal use, it is never necessary to stop a cycle to add waste. (See "How to Use", page 3.) However, on rare occasions (doing repairs, etc.), you may want to stop a cycle in progress. Turn the circuit breaker off momentarily (or unplug INCINOLET) to cancel the cycle. Then turn the circuit breaker back on (or plug in INCINOLET) so that the toilet is ready for use. If unit is hot enough to need it, the blower should come back on automatically to cool it. NOTE: If blower does not come on, smoke and odor may come directly into room. In this case, you may want to start the cycle again for a few minutes to finish burning off the waste remaining in the ashpan.

## Thermostats

Your INCINOLET is equipped with three thermostats.

1. SAFETY THERMOSTATS (STS) shuts heater off if air temperature inside toilet reaches about 145°F. It is located on the front surface of the control box at the upper right rear of the unit. To replace, disconnect voltage, remove top of unit, disconnect lead wires to old thermostat, and replace. (Fig. 9)
2. BLOWER THERMOSTAT (ITS) turns fan off when outside skin of chamber cools to 130°F and will turn fan on again if temperature increases. It is accessible through access panel opening, just to the left of the heater terminals. To replace, follow same procedure as for STS above. (Fig. 12)
3. LIMIT THERMOSTAT (TS) turns heater off if skin of chamber reaches a temperature of 325°F. It is located below the ITS blower thermostat and heater terminals, outside ashpan compartment. To replace, follow same instructions as for other thermostats. (Fig. 12)

# CARE AND CLEANING

Keep your INCINOLET clean to prevent odors.

- Empty ashpan when ash is about 1/2 inch deep. EXCESSIVE ASH BUILD-UP CAUSES ODOR, SHORTENS HEATER LIFE, AND DECREASES EFFICIENCY. If ash is caked and hard to remove, just soak insert pan for a few minutes in warm water.
- Wipe up urine spills as they happen.
- Every 6 months – clean blower wheel and inside of INCINOLET.
  1. Unplug unit and remove top. (See instructions below.)
  2. Clean inside with a detergent or a spray cleaner such as Formula 409. (Do not use pine oil cleaners.)
  3. Remove blower wheel and clean. (See page 10.)
  4. DO NOT STEAM CLEAN.
  5. Stainless steel polish can be used on outside surfaces to keep INCINOLET's finish lustrous.

**TIP:** If blower becomes noisy or vibrates, clean or replace blower wheel. (See page 10.)

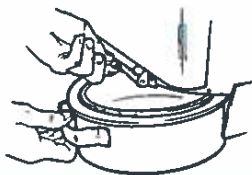
## Bowl Liners

**BE SURE** that the top edges of the liner are below the lid when it closes. Otherwise, paper will burn outside the chamber and cause momentary smoke and odor. **CAUTION:** Failure to use bowl liner for each and every use will **always** cause odor and urine on the floor.

Bowl liners are made of a special paper coated with polyethylene film. This liner is necessary to catch and contain the waste, then convey it into the incineration chamber. **USE A BOWL LINER FOR EACH AND EVERY USE.** Liner protects the bowl and prevents urine from draining to the floor.

## How to Remove Ashpan

Remove ashpan only when pan is cool and toilet is not operating.



### TO REMOVE ASHPAN

Remove ashpan panel.  
Raise camloc handle and unhook it from ashpan handle. Pull ashpan out. Empty ash in garbage.

**CAUTION: ASHPAN MUST BE SECURELY IN PLACE FOR PROPER OPERATION.**



### TO REPLACE ASHPAN

Push ashpan firmly into place.



Lift up on ashpan handle and engage hook of camloc under ashpan handle.



Push down on camloc handle. Replace ashpan panel.

Fig. 7

## Removing the Top (Seat, Lid, Bowl Halves)

Top is held in place with four screws, two per side and a rubber boot which protects the start button. Remove them, and then lift top up.

To replace top: With incinerator lid closed, hold bowl halves together and lower top into position. Replace four screws and rubber boot over start button. **Tip:** If you have trouble holding bowl halves in closed position while placing it back on toilet, just use a small piece of masking tape to hold them together, then slice through it from the top later.

*For help with troubleshooting  
or to order parts, call*

**1-800-263-0379**

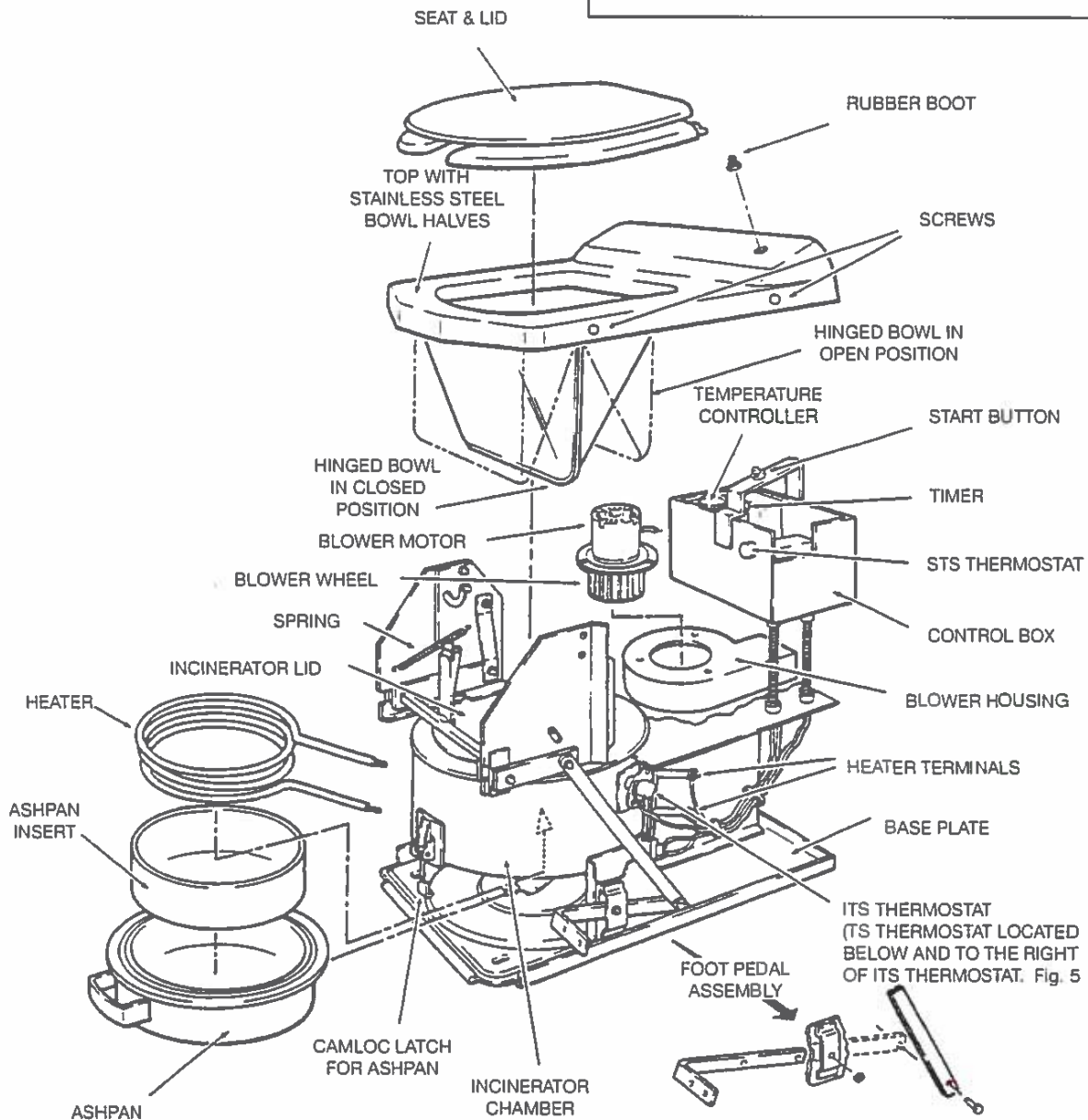
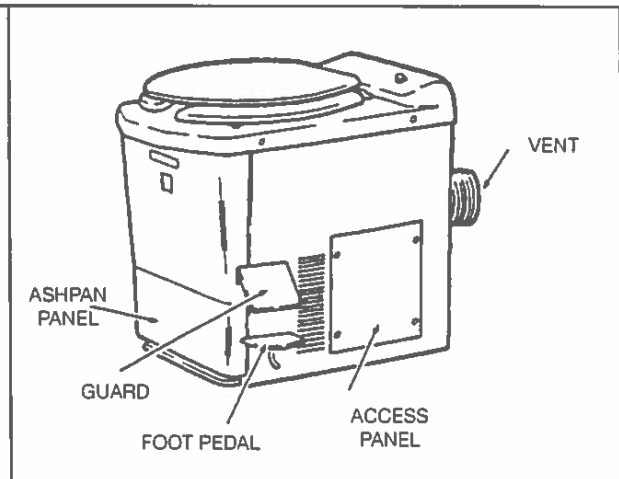
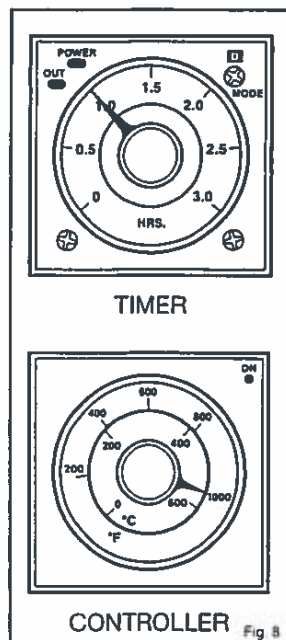


Fig 9

# TROUBLESHOOTING



## TIMER & TEMPERATURE CONTROLLER THE KEY TO TROUBLESHOOTING

Timer limits heating cycle, Controller limits heater temperature. Timer and temperature controller are within control box in upper right corner of housing, accessible with top removed. Timer has two lights: green and red. Temperature controller has one red light. A steady green light on timer indicates unit has power and is ready for operation. When start button is pushed, green light begins blinking and the red light comes on and stays on for a timed interval, during which time temperature controller is activated and its red light is on. Controller red light means that the relay is activated and supplying power to heater. Controller red light stays on until timer cuts off after the timed interval, or heater reaches maximum allowed temperature and thermocouple signals controller to open relay. In actual operation, when timer reaches end of timed

interval, its red light goes off, and blinking green light turns steady again. During the timed interval, controller red light will be on constantly until heater reaches about 1200 degrees F, at which point controller red light goes off and the relay opens. Controller red light comes on again after 30 seconds or so, stays on for about 40 seconds, then goes off again, and so on until the end of timed interval.

### TIMER ADJUSTMENT: (See Fig. 8.)

Timer dial reads 0 to 3 hrs. Timer pointer is set to 1.0 hrs. If INCINOLET is used primarily for solids deposits in rapid succession and incineration is incomplete, move pointer to 2.0 hrs. If used throughout the day, both for urine and solids, timer would be best set at 1.0 hr. To adjust timer, remove top of toilet and turn dial so timer reads new setting. (See p. 7.) Replace top. **DON'T MAKE ANY ADJUSTMENT REQUIRING SCREWDRIVER.**

## BLOWER COMES ON BUT HEATER DOESN'T HEAT

Remove top, examine timer and controller as above. If both timer and controller lights are on, then heater has failed. To verify, remove access panel, measure voltage directly across heater terminals, not from terminal to ground. If voltage appears, REPLACE HEATER. If no voltage appears, check circuit further.

## TIMER LIGHTS WORK BUT CONTROLLER RED LIGHT IS NOT ON

Test thermocouple. Unplug toilet, remove side access panel. Remove wire nuts from thermocouple leads (#6 & #7). Twist the gray and purple wires together, then plug unit in and push start button. If controller red light comes on, REPLACE THERMOCOUPLE. **CIRCUIT BREAKER OPENS WHEN START BUTTON IS PUSHED**

This indicates heater may be shorted to ground. Unplug toilet, remove access panel. Remove orange lead wires to heater terminals. Again push start button. If blower comes on and circuit breaker does not open, heater is shorted. REPLACE HEATER.

Unplug toilet, examine all wiring which might be grounded by touching housing. REPLACE OR TAPE ANY BARE WIRES.

## NOTHING COMES ON, BUT TIMER GREEN LIGHT IS ON

Inspect timer lights as you push start button. Red lights should come on, green light should begin blinking. If not, CHECK START SWITCH OR REPLACE TIMER.

## BLOWER, HEATER WON'T STAY ON

If timer, blower and heater come on when start button is pushed but turn off as soon as start button is released, REPLACE TIMER.

## BLOWER STOPS AT END OF HEATING CYCLE

Blower should be on from 30 to 55 minutes after heater cuts off. Unplug toilet, remove access panel, inspect for and tighten any loose wiring. REPLACE BLOWER THERMOSTAT.

## BLOWER DOES NOT OPERATE

Blower must come on immediately when start button is pushed and should not stop while heater is on. If not, check blower wheel to be sure it's not binding. Listen to blower motor for a humming sound (like motor is trying to start). This would indicate bad motor bearings. REPLACE BLOWER MOTOR

## BLOWER OFF & ON AT CYCLE END

It is normal for blower to stop for 4 or 5 minutes, then start again for a few minutes, a couple of times at end of cycle. If, however, blower stops and starts rapidly, blower (ITS) thermostat is faulty. REPLACE ITS THERMOSTAT

## BOWL HANGS OPEN:

### PEDAL WON'T RETURN

1. Closing mechanism may be out of adjustment.
2. Foot pedal goes too far down and locks up. Place block under foot pedal to prevent excess travel.

## EXCESSIVE NOISE, VIBRATION

CLEAN OR REPLACE BLOWER WHEEL.

## INCOMPLETE INCINERATION

Can be any one of several causes:

1. Start button not pushed after each use.
2. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
3. Too many people using toilet.
4. Burn cycle too short. Add more time to the timer.

## ODOR WITHIN ROOM

Can be any one of several causes:

1. Failure to use bowl liner each and every time or careless use of liner.
2. Solids not completely incinerated. May need more time on timer or additional incineration cycles.
3. Ashpan too full. Empty more often. (Empty when ash is 1/2 inch deep.)
4. Back-drafting. Use back-draft preventer on horizontal vent-line or run the vent vertically with a rain cap at the top.

## ODOR OUTSIDE

Causes same as above, plus:

1. Catalyst port perforations are clogged. Clean chamber wall behind heater coil with small brush.
2. Catalyst has "set". Stir with small rod to loosen. (See catalyst p. 11.)
3. Incinerator lid hanging open, allowing odor to escape.

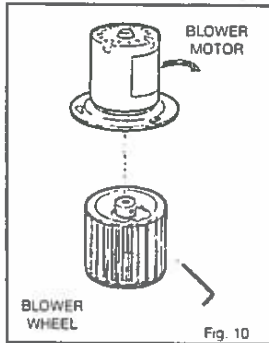
## RESIDUE BLACK, LIKE CHARCOAL

Ash should be white to gray. Black lumps means insufficient air is being drawn into chamber. There may also be soot around ashpan lip at front and on inside of ashpan panel. Remove ashpan and use small brush to clean perforations in inner incinerator wall back of heating coils.



# MAINTENANCE AND REPAIRS

## Clean Blower Wheel



Blower draws fresh air into toilet to provide oxygen for the burn, carries smoke and odor into the catalyst, then exhausts moist air outside. Clean blower wheel and housing every 90 days, or any time excessive noise and vibration occur.

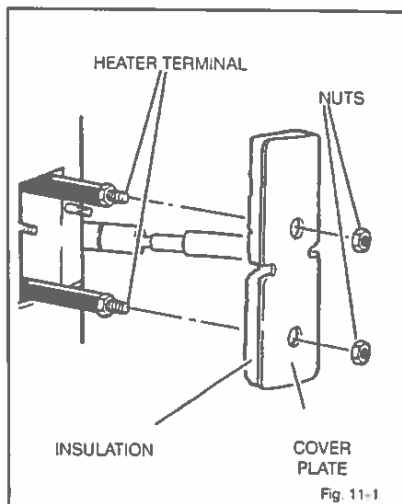
1. Remove top of INCINOLET.
2. Disconnect two wires on side of control box to free motor.
3. Loosen (no need to remove) 3 screws holding blower motor plate. (Fig. 10). Twist and lift motor over screw slots to remove it.
4. Use 1/8" Allen wrench to remove set screw in wheel hub.
5. Clean grease and dirt from wheel with hot soapy water or a degreasing cleaner.
6. Replace wheel if corroded or if vibration indicates it is out of balance.
7. Clean inside of blower housing occasionally.

## Replace Heater

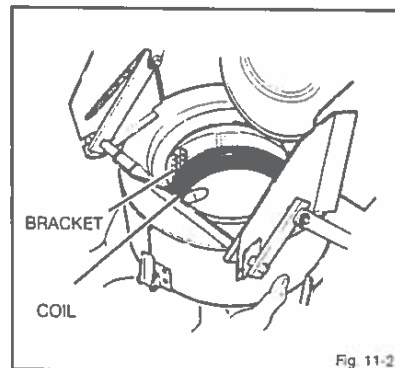
**Note:** For maximum heater life incinerate after each use, and keep ash level down to no more than 1/2 inch.

### To Remove Old Heater:

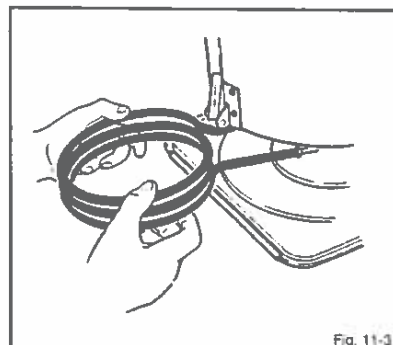
- Turn off voltage to INCINOLET. Remove ashpan. Remove access panel. Remove top. Hold incinerator open either by wedging down the foot pedal or blocking flushing mechanism in open position.
- Remove thermocouple but do not disconnect. (Fig. 12)
- Disconnect wiring to heater terminals. Remove cover plate and insulation around heater terminals. (Fig. 11-1)



- Push up on heater coils to clear heater brackets. (Fig. 11-2)



- Remove heater through ashpan opening. (Fig. 11-3)  
Note: Brackets may be wedged tightly in slots in wall. It is okay to remove brackets, but not absolutely necessary.



### To Install New Heater:

- Reverse above procedure. Locate heater in brackets, making sure brackets are seated in slots in the incinerator wall. (Fig. 11-2)  
**IMPORTANT:** Locate heater at lowest position in heater bracket. Coils must not touch each other.
- Replace insulation and cover over heater terminals. (Fig. 11-1)
- On new heater coil, remove nut and only 1 of the 2 new washers. Slip heater wire's connector over the terminal, then the 2nd new washer and a nut. It is best to reuse the original lock nut, but the new nut can be used if needed. Always use the new washers, one on either side of the heater wire connector.
- **CAREFULLY** tighten nut, using two (2) end wrenches to prevent twisting the heater stud terminals, which would break the moisture seal at end of heater (Fig. 11-1).
- Replace thermocouple. Push knurled cylinder to compress spring. Turn to engage stud, then release. Spring must be compressed to insure that tip of thermocouple contacts outer surface of heater. (See p. 11.)
- Replace access panel, ashpan, top. Close circuit breaker.
- Start cycle to test heater and total operation.





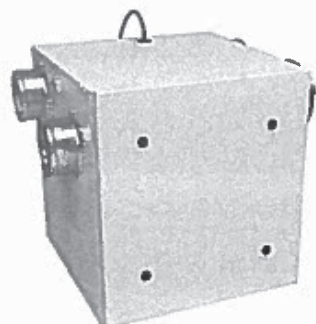




# GUIDE D'INSTALLATION

## VENMAR AVS

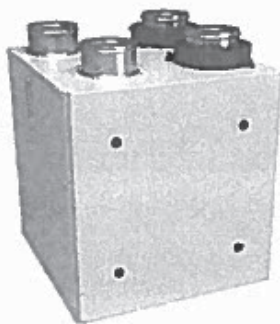
BOUCHES LATÉRALES



VB0201

**K7 ERV Modèle n° 44163**

BOUCHES SUR LE DESSUS

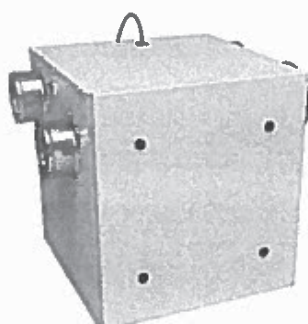


VB0200

**K7 ERV Modèle n° 44162**

## VÄNÉE

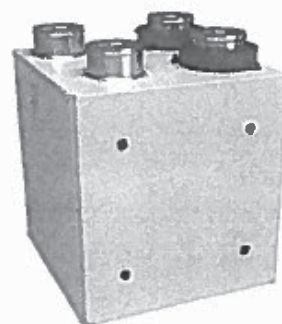
BOUCHES LATÉRALES



VB0201

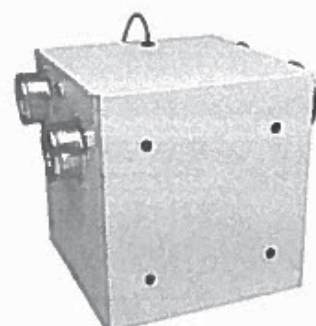
**40E Modèle n° 44263**

BOUCHES SUR LE DESSUS



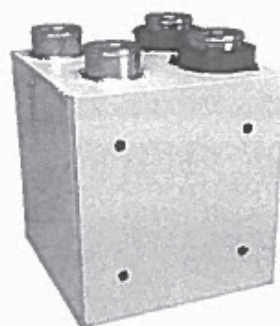
VB0200

**40E Modèle n° 44262**



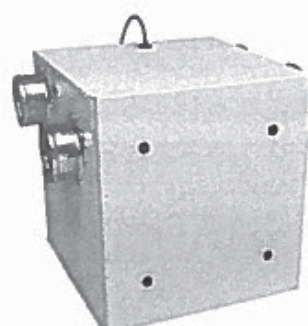
VB0201

**K8 HRV\* Modèle n° 44153**  
**K10 HRV\* Modèle n° 44502**



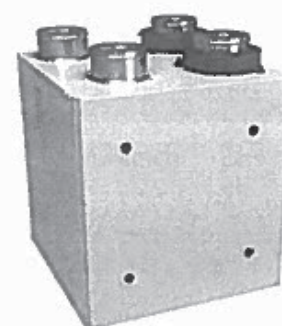
VB0200

**K8 HRV\* Modèle n° 44152**  
**K10 HRV\* Modèle n° 44500**



VB0201

**40H+\* Modèle n° 44253**  
**50H+\* Modèle n° 44602**



VB0200

**40H+\* Modèle n° 44252**  
**50H+\* Modèle n° 44600**



\* Ces présents produits sont homologués ENERGY STAR® parce qu'ils respectent des exigences rigoureuses en matière d'efficacité énergétique établies par Ressources naturelles Canada et la EPA des États-Unis. Ils répondent aux exigences ENERGY STAR seulement lorsqu'ils sont utilisés au Canada.

**⚠ UTILISATION RÉSIDENTIELLE INTÉRIEURE SEULEMENT ⚠**

**VEUILLEZ LIRE ET CONSERVER CES DIRECTIVES**

## À PROPOS DE CE GUIDE

En raison du nombre élevé de modèles couverts par cette publication, les illustrations qui s'y trouvent sont générales. Certains détails de votre appareil peuvent différer légèrement de ceux illustrés.

Veuillez noter que ce guide utilise les symboles suivants afin d'accentuer les informations particulières :

### ⚠ AVERTISSEMENT

**Identifie une directive qui, si elle n'est pas suivie, peut causer de graves blessures ou entraîner la mort.**

### ATTENTION

**Identifie une directive qui, si elle n'est pas suivie, peut gravement endommager l'appareil et/ou ses pièces.**

NOTE : Indique une information supplémentaire afin de réaliser une directive.

## À PROPOS DE CES APPAREILS

### LIMITATION

Pour installation résidentielle (domestique) seulement. Les travaux d'installation et de raccordement électrique doivent être effectués par du personnel qualifié, conformément aux codes et aux standards de construction, incluant ceux concernant la protection contre les incendies.

### ⚠ AVERTISSEMENT

**AFIN DE DIMINUER LES RISQUES D'INCENDIE, D'ÉLECTROCUTION OU DE BLESSURES CORPORELLES, SUIVEZ LES DIRECTIVES SUIVANTES :**

1. N'utiliser cet appareil que de la façon prévue par le fabricant. En cas de doutes, contacter le fabricant à l'adresse ou au numéro de téléphone inscrit dans le texte de garantie.
2. Nous vous recommandons de faire inspecter l'appareil annuellement par un technicien spécialisé.
3. Débrancher le cordon d'alimentation de l'appareil avant d'effectuer l'entretien ou la réparation.
4. Cet appareil n'est pas conçu pour fournir l'air nécessaire à la combustion et/ou à la dilution des appareils à combustion.
5. Veillez à ne pas endommager le câblage électrique ou d'autres équipements non apparents lors de la découpe ou du perçage du mur ou du plafond.
6. Ne pas utiliser cet appareil avec une commande de vitesse à semi-conducteur autre qu'une des commandes suivantes :

APPAREIL	COMMANDE PRINCIPALE	COMMANDE AUXILIAIRE
K7 ERV, K8 HRV ET K10 HRV	ALTITUDE, DECO-TOUCH, LITE-TOUCH CONSTRUCTO, SIMPLE TOUCH CONSTRUCTO OU CONSTRUCTO	BOUTON-POUSOIR 20/40/60 MINUTES, MINUTERIE MÉCANIQUE 60 MINUTES, BOUTON-POUSOIR ILLUMINÉ 20 MINUTES ET DÉSHUMIDISTAT
40E, 40H+ ET 50H	PLATINUM, DECO-TOUCH, LITE-TOUCH BRONZE, SIMPLE TOUCH BRONZE OU BRONZE	

7. Cet appareil doit être mis à la terre. Pour votre propre protection, le cordon d'alimentation est muni d'une fiche à 3 broches. Cette fiche doit être branchée à une prise à trois trous avec une mise à la terre, conformément au code national d'électricité ainsi qu'aux codes et règlements locaux. Ne pas enlever la broche pour la mise à la terre. Ne pas utiliser de rallonge électrique.
8. Ne pas installer dans une aire de cuisson ou brancher directement à aucun appareil ménager.
9. Ne pas utiliser pour évacuer des vapeurs ou des matières dangereuses ou explosives.
10. Il est recommandé de porter des lunettes et des gants de sécurité lors de l'installation, de l'entretien ou de la réparation de ces appareils.
11. Deux installateurs sont recommandés pour l'installation de cet appareil, en raison du poids de celui-ci.
12. Lorsqu'une réglementation est en vigueur localement et qu'elle comporte des exigences d'installation et/ou de certification plus restrictives, lesdites exigences prévalent sur celles de ce document et l'installateur entend s'y conformer à ses frais.

### ATTENTION

1. Afin d'éviter l'encrassement prématuré des filtres, faire cesser le fonctionnement de l'appareil lors de travaux de construction ou de rénovation.
2. Pour plus de renseignements au sujet de votre appareil, veuillez lire les autocollants apposés sur votre appareil.
3. S'assurer que les bouches correspondantes donnent sur l'extérieur. Ne pas aspirer/évacuer l'air dans des espaces restreints comme l'intérieur des murs ou plafond ou dans le grenier, un faux plafond ou un garage.
4. Destiné pour usage résidentiel seulement, selon les prescriptions du NFPA 90B (pour un appareil installé aux États-Unis) ou selon la Partie 9 du Code National du Bâtiment du Canada (pour un appareil installé au Canada).
5. Ne pas installer des conduits directement ou à moins de 2 pi (0,61 m) d'aucune fournaise, de son conduit de distribution, de chaudière ou d'aucun appareil de chauffage. Si un conduit doit être raccordé au plenum de retour d'air de la fournaise, il doit être installé à au moins 9 pi 10 po (3 m) du raccordement de ce plenum à la fournaise.
6. Le réseau de conduit doit être installé selon tous les codes en vigueur.
7. En cas d'absence prolongée (plus de deux semaines), laissez une personne responsable vérifier régulièrement que l'appareil fonctionne adéquatement.
8. Si les conduits doivent passer par un endroit où la température n'est pas contrôlée (ex. : grenier), ceux-ci doivent être isolés et l'appareil doit fonctionner sans arrêt sauf lors de son entretien ou de sa réparation. Aussi, la température ambiante de la maison ne doit jamais se situer sous 18 °C (65 °F).

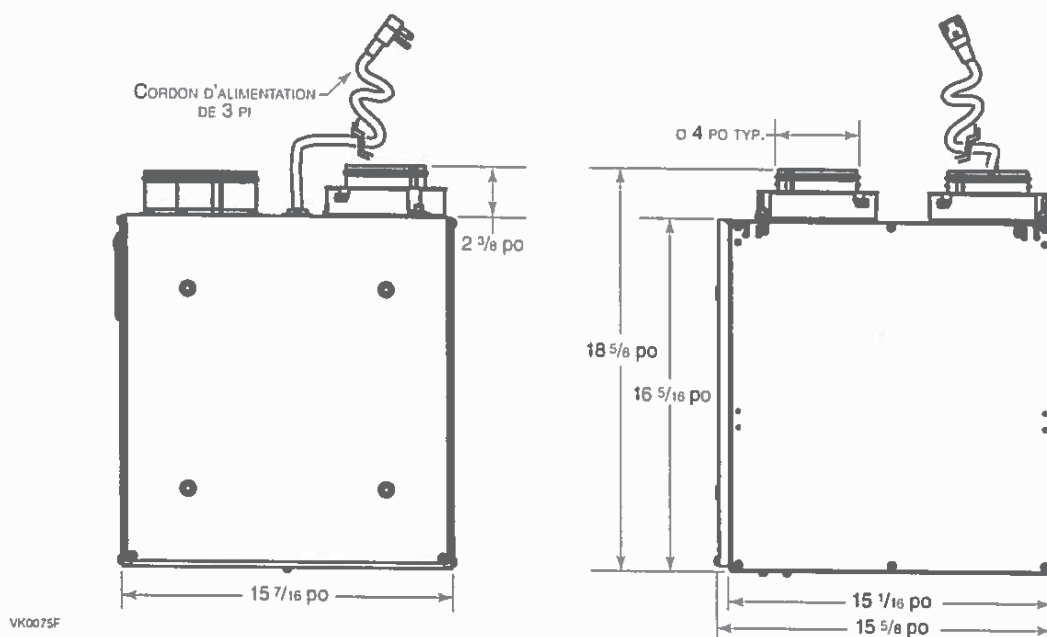
## 1. DONNÉES TECHNIQUES (SUITE)

### 1.2 CYCLES DE DÉGIVRAGE

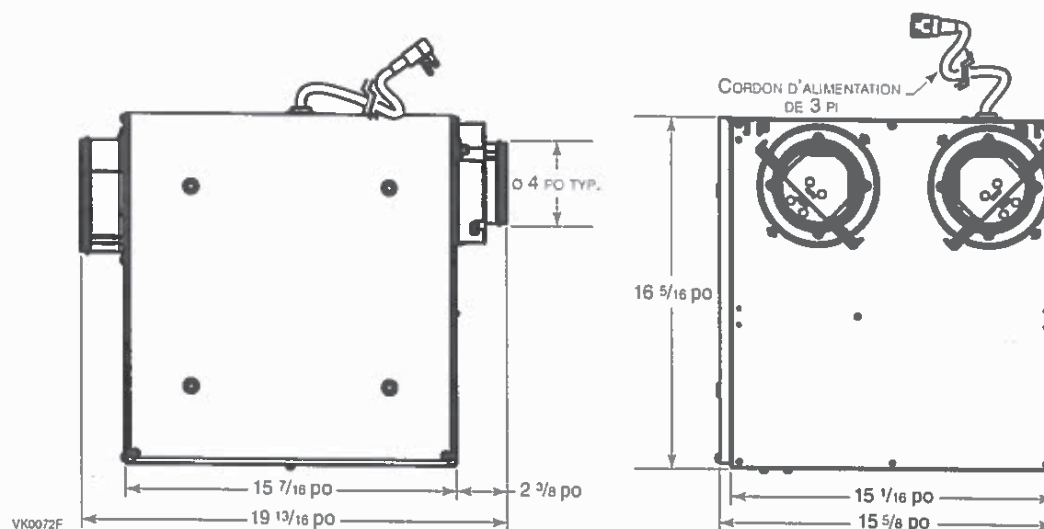
APPAREILS K8 HRV, K10 HRV, 40H+ ET 50H						APPAREILS K7 ERV ET 40E					
TEMPÉRATURE EXTÉRIEURE		CYCLES DE DÉGIVRAGE (MINUTES)		CYCLES DE DÉGIVRAGE PROLONGÉ* (MINUTES)		TEMPÉRATURE EXTÉRIEURE		CYCLES DE DÉGIVRAGE (MINUTES)		CYCLES DE DÉGIVRAGE PROLONGÉ* (MINUTES)	
°C	°F	DÉGIVRAGE	FONCTIONNEMENT ENTRE CHAQUE CYCLE DE DÉGIVRAGE	DÉGIVRAGE	FONCTIONNEMENT ENTRE CHAQUE CYCLE DE DÉGIVRAGE	°C	°F	DÉGIVRAGE	FONCTIONNEMENT ENTRE CHAQUE CYCLE DE DÉGIVRAGE	DÉGIVRAGE	FONCTIONNEMENT ENTRE CHAQUE CYCLE DE DÉGIVRAGE
-5	23	5	30	6	20	-5	23	7	22	7	15
-15	5	5	20	6	15	-15	5	7	22	7	15
-27	-17	7	15	7	12	-27	-17	7	15	7	12

\* En région froide (température extérieure de -27 °C [-17 °F] et plus basse), il peut être nécessaire de régler l'appareil en DÉGIVRAGE PROLONGÉ. Voir la section 4.3.

### 1.3 DIMENSIONS DES APPAREILS AVEC BOUCHES SUR LE DESSUS



### 1.4 DIMENSIONS DES APPAREILS AVEC BOUCHES LATÉRALES

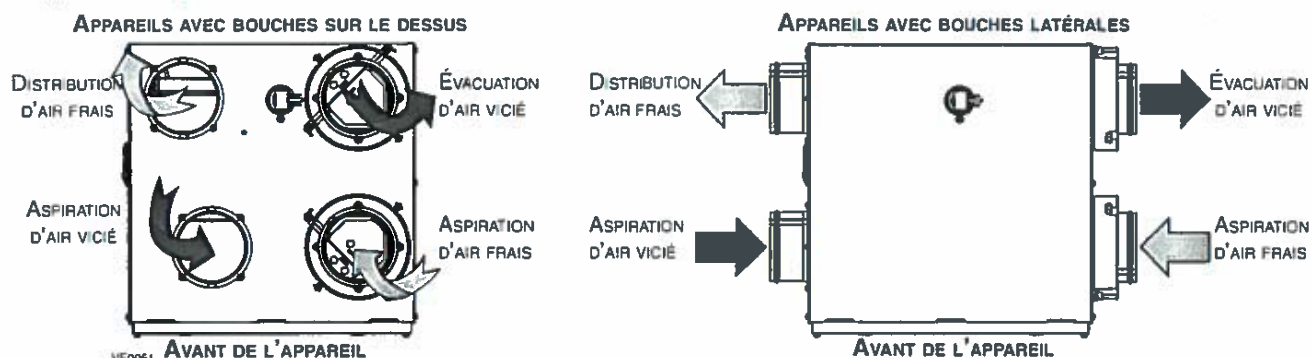


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### 1. DONNÉES TECHNIQUES

#### 1.1 DISTRIBUTION DE L'AIR





## 2. INSTALLATIONS TYPES

Les illustrations suivantes ont été conçues pour vous servir de guide afin de vous aider à choisir comment installer votre appareil. Tous les appareils doivent être suspendus aux solives.

Au besoin, un ventilateur de salle de bains ainsi qu'une hotte de cuisinière peuvent être utilisés pour évacuer l'air vicié. Aussi, pour les maisons ayant plus d'un étage, nous recommandons d'installer une grille d'évacuation au niveau le plus élevé.

Il existe 3 méthodes d'installation : installation indépendante, évacuation à la source et simplifiée.

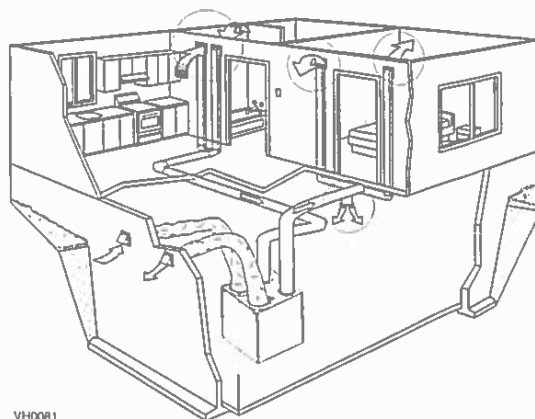
NOTE : Une prise de courant doit être accessible à 3 pi ou moins de l'appareil.

### 2.1 INSTALLATION INDÉPENDANTE (SURTOUT POUR LES MAISONS À SYSTÈME DE CHAUFFAGE RAYONNANT À EAU CHAUDE OU PLINTHES ÉLECTRIQUES)

L'air vicié provenant des grilles situées au niveau le plus élevé est évacué à l'extérieur. L'air frais de l'extérieur est filtré puis distribué par la grille située au niveau habitable le plus bas de la maison.

Les maisons ayant plus d'un étage doivent avoir au moins une grille d'évacuation au niveau le plus élevé.

Voir l'illustration ci-contre.



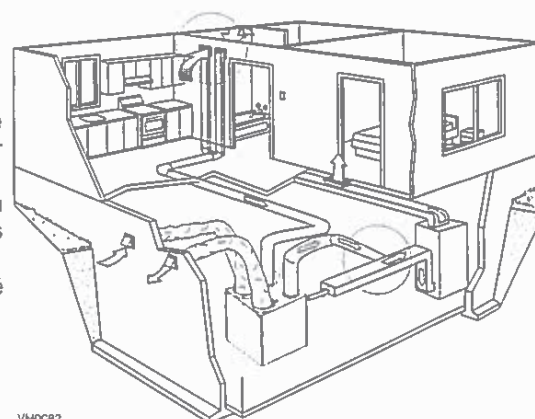
VH0081

### 2.2 ÉVACUATION À LA SOURCE (RACCORDEMENT À UN SYSTÈME À AIR PULSÉ)

L'air vicié provenant des grilles situées au niveau le plus élevé est évacué à l'extérieur. L'air frais de l'extérieur est filtré puis distribué dans le retour d'air (plenum) de l'appareil à air pulsé.

Pour ce type d'installation, il n'est pas essentiel que le ventilateur du système à air pulsé soit en marche lorsque l'appareil est activé, mais nous le recommandons.

NOTE : Les habitations pourvues de plusieurs systèmes à air pulsé devraient avoir un appareil par système.



VH0082

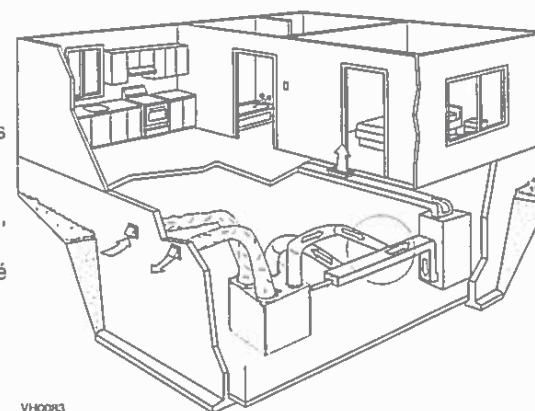
### 2.3 INSTALLATION SIMPLIFIÉE (RACCORDEMENT À UN SYSTÈME À AIR PULSÉ)

L'air vicié est évacué à l'extérieur. L'air frais de l'extérieur est filtré puis distribué dans le retour d'air (plenum) de l'appareil à air pulsé.

Voir l'illustration ci-contre.

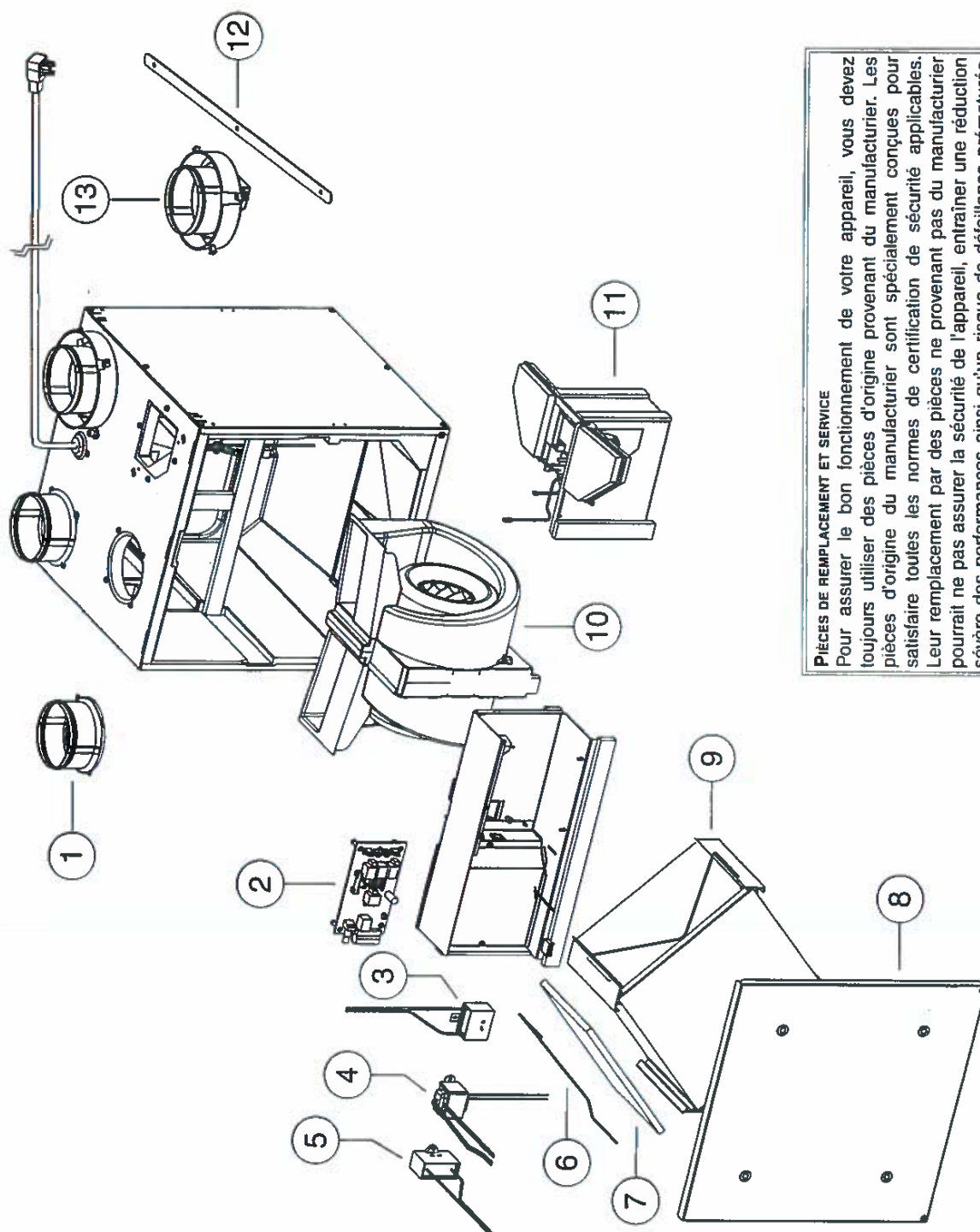
Pour éviter l'inter-contamination et atteindre les meilleures performances, le ventilateur du système à air pulsé doit toujours être en marche.

NOTE : Les habitations pourvues de plusieurs systèmes à air pulsé devraient avoir un appareil par système.



VH0083

### 3. PIÈCES DE REMPLACEMENT



#### PIÈCES DE REMPLACEMENT ET SERVICE

Pour assurer le bon fonctionnement de votre appareil, vous devez toujours utiliser des pièces d'origine provenant du fabricant. Les pièces d'origine du fabricant sont spécialement conçues pour satisfaire toutes les normes de certification de sécurité applicables. Leur remplacement par des pièces ne provenant pas du fabricant pourrait ne pas assurer la sécurité de l'appareil, entraîner une réduction sévère des performances ainsi qu'un risque de défaillance prématurée. Le fabricant recommande également de toujours vous référer à une entreprise de services compétente et reconnue par le fabricant pour vos pièces de remplacement et appels de service.

VL0043

### 3. PIÈCES DE REMPLACEMENT (SUITE)

Réf.	N° DE PIECE	DESCRIPTION	K8 HRV (44152)	K8 HRV (44153)	K7 ERV (44162)	K7 ERV (44163)	40H+ (44252)	40H+ (44253)	40E (44262)	40E (44263)	K10 HRV (44500)	K10 HRV (44502)	50H (44600)	50H (44602)
1	18854	BOUCHE DE MÉTAL DE 4 PO, RONDE	2	2	2	2	2	2	2	2	2	2	2	2
2	19206	CARTE ÉLECTRONIQUE (VRC)	1	1			1	1			1	1	1	1
	19207	CARTE ÉLECTRONIQUE (VRE)			1	1			1	1				
3	16042	CONDENSATEUR 5 µF	1	1	1	1	1	1	1	1	1	1	1	1
	61550	CONDENSATEUR 6 µF												
4	17244	TRANSFORMATEUR			1	1			1	1				
	62480		1	1			1	1			1	1	1	1
5	19211	CONDENSATEUR 13 µF	1	1	1	1	1	1	1	1	1	1	1	1
6	19208	BROCHES DE RETENUE DE FILTRE (MIRE)	1	1	1	1	1	1	1	1	1	1	1	1
7	18883	FILTRES DE NOYAU (MIRE)	1	1	1	1	1	1	1	1	1	1	1	1
	19201	PORTE ASSEMBLÉE	1	1	1	1					1	1		
8	19203	PORTE ASSEMBLÉE					1	1	1	1			1	1
	19199	NOYAU DE RÉCUPÉRATION DE CHALEUR	1	1			1	1			1	1	1	1
9	19200	NOYAU DE RÉCUPÉRATION D'ÉNERGIE			1	1			1	1				
	18867	BLOC VENTILATEUR	1	1	1	1	1	1	1	1				
10	62176	BLOC VENTILATEUR									1	1	1	1
	18868	SYSTÈME VOILETS BOUCHES VERTICALES	1		1		1		1		1		1	
11	18881	SYSTÈME VOILETS BOUCHES HORIZONTALES*		1		1		1		1		1		1
12	19212	COURROIE DE BOUCHES DE 4 PO	2	2	2	2	2	2	2	2	2	2	2	2
13	18855	BOUCHE DOUBLE 4 PO AVEC VOLET	2	2	2	2	2	2	2	2	2	2	2	2
14	19213	ENSEMBLE DE QUINCAILLERIE*	1	1	1	1	1	1	1	1	1	1	1	1
15	16416	BORMIER DE CONNEXION*	1	1	1	1	1	1	1	1	1	1	1	1

\* PIÈCE NON ILLUSTRÉE.



## 4. INSTALLATION

### 4.1 VÉRIFIER LE CONTENU DE LA BOÎTE

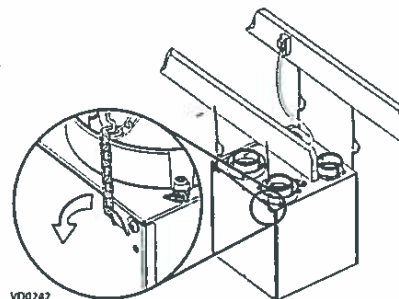
Vérifier si l'extérieur de l'appareil n'a subi aucun dommage. S'assurer que la porte, les bouches, le cordon d'alimentation, etc., sont en bon état.

### 4.2 EMBLACEMENT DE L'APPAREIL

Choisir un emplacement adéquat pour l'appareil.

- Dans une pièce de la maison où la température ambiante se maintient entre 10 °C (50 °F) et 40 °C (104 °F);
- Autant que possible éloigné des endroits les plus fréquentés (salle à dîner, salon, chambres);
- De façon à pouvoir accéder facilement à l'intérieur de l'appareil, pour en effectuer l'entretien trimestriel et annuel;
- Près d'un mur extérieur, de façon à limiter la longueur des conduits flexibles isolés;
- Éloigné des cheminées chaudes et autres risques d'incendie;
- Prévoir une source d'alimentation électrique (prise standard à 3 alvéoles dont une de mise à la terre);
- Près d'un drain (appareils VRC seulement). S'il n'y en a pas, se servir d'un seau pour récupérer l'écoulement.

Suspendre l'appareil à l'aide des 4 chaînes et ressorts inclus. Voir ci-contre.



#### ATTENTION

**S'assurer que l'appareil soit de niveau.**

### 4.3 PLANIFICATION DU RÉSEAU DE CONDUITS

- Prévoir un réseau le plus simple possible, avec un minimum de coudes et de raccords.
- La longueur des conduits isolés doit être réduite à son minimum.
- Ne pas ventiler les vides sanitaires ni les chambres froides. Ne pas tenter de récupérer l'air évacué provenant d'une sècheuse ou d'une hotte de cuisinière; cela causerait l'encrassement du noyau de récupération et des filtres.
- Si la maison a plus d'un étage, prévoir au moins une grille d'aspiration au niveau le plus élevé.

### 4.4 INSTALLATION DES CONDUITS ET DES GRILLES

#### 4.4.1 INSTALLATION INDÉPENDANTE (TELLE QU'ELLE EST ILLUSTRÉE À LA SECTION 2.1)

#### ⚠ AVERTISSEMENT

**Ne jamais installer une grille d'aspiration d'air vicié dans une pièce fermée où fonctionne un appareil à combustion tel qu'une fournaise, un chauffe-eau à gaz ou un foyer.**

#### Aspiration d'air vicié

- Installer les grilles d'aspiration d'air vicié là où les contaminants sont générés : cuisine, salon, etc. Installer les grilles le plus loin possible des escaliers et de façon à ce que l'air puisse circuler partout dans la maison.
- Si une grille est installée dans la cuisine, elle doit être située à au moins 4 pi (1,2 m) de la cuisinière.
- Installer les grilles sur un mur intérieur, à une distance de 6 po à 12 po (152 mm à 305 mm) du plafond OU les installer au plafond.

#### Distribution d'air frais

- Installer les grilles de distribution d'air frais dans les chambres à coucher, salle à dîner et sous-sol.
- Se rappeler que les grilles de distribution d'air frais doivent être éloignées le plus possible des grilles d'aspiration d'air vicié.
- Installer les grilles au plafond OU sur un mur intérieur, à une distance de 6 po à 12 po (152 mm à 305 mm) du plafond. (L'air frais circulera à travers la pièce et se mélangera à l'air ambiant, assurant ainsi un renouvellement continu de l'air.)
- Si une grille doit être installée au plancher, diriger son jet d'air vers le mur.

## 4. INSTALLATION (SUITE)

### 4.4 INSTALLATION DES CONDUITS ET DES GRILLES (SUITE)

#### 4.4.2 ÉVACUATION À LA SOURCE (TELLE QU'ELLE EST ILLUSTRÉE À LA SECTION 2.2)

##### Aspiration d'air vicié

Même procédure que pour une installation indépendante, décrite au point 4.4.1

#### ⚠ AVERTISSEMENT

Lors de raccordement au conduit, toujours utiliser des outils et matériaux approuvés. Respecter toutes les lois et les règlements en vigueur. Veuillez vous référer à votre code du bâtiment.

#### ATTENTION

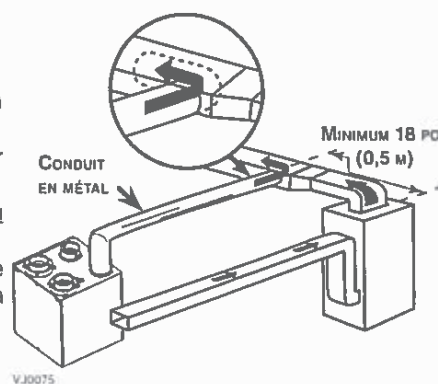
Lors de raccordement au conduit de distribution d'air de la fournaise, ce dernier doit être dimensionné pour supporter le débit supplémentaire apporté par l'appareil. De plus, l'utilisation d'un conduit en métal est fortement recommandée.

##### Distribution d'air frais

Il existe 2 méthodes pour raccorder l'appareil à la fournaise :

##### Méthode 1 : Raccordement côté distribution d'air

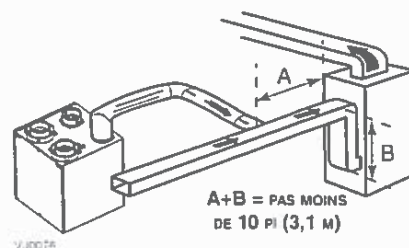
- Découper une ouverture dans le conduit de distribution d'air de la fournaise à une distance d'au moins 18 po (0,5 m) de la fournaise.
- Relier cette ouverture à la bouche de **Distribution d'air frais** de l'appareil (utiliser un **conduit en métal**, voir figure ci-contre).
- S'assurer que le conduit venant de l'appareil forme un coude à l'intérieur du conduit de la fournaise.
- Si désiré, synchroniser le fonctionnement du ventilateur de la fournaise avec le fonctionnement de l'appareil (voir la section 6 Raccordement électrique à la fournaise).



##### Méthode 2 : Raccordement côté retour d'air

- Découper une ouverture dans le conduit de retour d'air de la fournaise à une distance d'au moins 10 pi (3,1 m) de la fournaise (A+B).
- Relier cette ouverture à la bouche de **Distribution d'air frais** de l'appareil (voir figure ci-contre).

NOTE : Pour la méthode 2, il n'est pas essentiel que le moteur de la fournaise fonctionne lorsque l'appareil est en marche, mais nous le recommandons. Si désiré, synchroniser le fonctionnement du ventilateur de la fournaise avec le fonctionnement de l'appareil (voir la section 6 Raccordement électrique à la fournaise).



## 4. INSTALLATION (SUITE)

### 4.4 INSTALLATION DES CONDUITS ET DES GRILLES (SUITE)

#### 4.4.3 INSTALLATION SIMPLIFIÉE (TELLE QU'ELLE EST ILLUSTRÉE À LA SECTION 2.3)

#### ⚠ AVERTISSEMENT

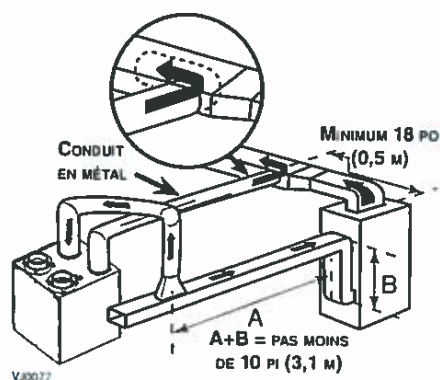
Lors de raccordements aux conduits, toujours utiliser des outils et matériaux approuvés. Respecter toutes les lois et les règlements en vigueur. Veuillez vous référer à votre code du bâtiment.

#### ATTENTION

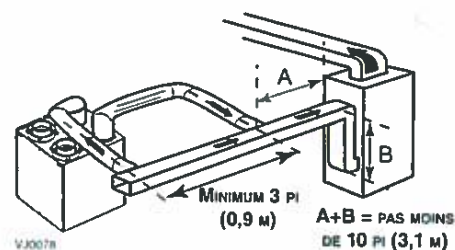
Lors de raccordement au conduit de distribution d'air de la fournaise (Méthode 1), ce dernier doit être dimensionné pour supporter le débit supplémentaire apporté par l'appareil. De plus, l'utilisation d'un conduit en métal est fortement recommandée. Dans le cas d'une installation de type retour-retour, le ventilateur de la fournaise doit fonctionner lorsque l'appareil est en marche.

Il existe 2 méthodes pour raccorder l'appareil à la fournaise :

#### Méthode 1 : retour-distribution



#### Méthode 2 : retour-retour



#### Aspiration d'air vicié

- Découper une ouverture dans le conduit de retour d'air de la fournaise à une distance d'au moins 10 pi (3,1 m) de la fournaise (A+B).
- Relier cette ouverture à la bouche d'*Aspiration d'air vicié* de l'appareil.

#### Distribution d'air frais

- Les mêmes instructions que pour les méthodes 1 ou 2, section 4.4.2.  
Pour la méthode 2 (retour-retour), s'assurer qu'il y a une distance d'au moins 3 pi (0,9 m) entre les 2 raccordements à la fournaise.

#### ATTENTION

Si la méthode 2 est utilisée, s'assurer que le fonctionnement du ventilateur de la fournaise soit synchronisé avec celui de l'appareil! Voir la section 6 Raccordement électrique à la fournaise.

NOTE : Pour la méthode 1, il n'est pas essentiel que le ventilateur de la fournaise fonctionne lorsque l'appareil est en marche, mais nous le recommandons.

## 4. INSTALLATION (SUITE)

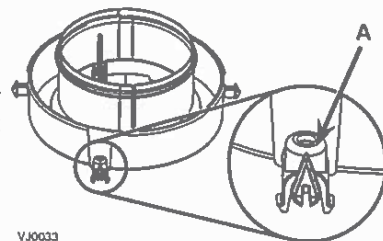
### 4.5 RACCORDEMENT DES CONDUITS À L'APPAREIL

**NOTE :** Toutes les bouches de l'appareil ont été conçues pour être raccordées à des conduits d'un minimum de 4 po de diamètre, mais si nécessaire, elles peuvent être raccordées à des conduits de format plus grand en utilisant une transition adéquate (ex. : transition de 4 po à 5 po de diamètre).

#### Conduits flexibles isolés

Procéder comme suit pour le branchement des conduits flexibles isolés aux bouches de l'appareil (Évacuation d'air vicié et Aspiration d'air frais).

Surtout les appareils, ces deux bouches sont munies de volets de balancement. Avant d'installer les conduits flexibles isolés, s'assurer que les volets de ces deux bouches soient complètement ouverts (les tiges de réglage (A) doivent être à la verticale, tel qu'il est illustré ci-contre).



VJ0033

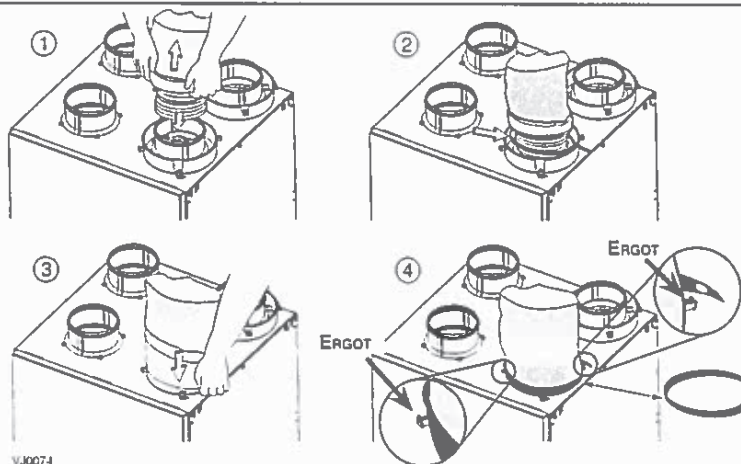
#### ATTENTION

**Si les conduits doivent passer par un endroit où la température n'est pas contrôlée (ex. : grenier), toujours utiliser des conduits isolés.**

- ① Tirer sur l'isolant pour exposer le conduit flexible.
- ② À l'aide d'une attache autoblocante, fixer le conduit flexible à la bouche.
- ③ Tirer l'isolant par-dessus le joint et l'appuyer entre les anneaux intérieur et extérieur de la bouche.
- ④ Descendre le coupe-vapeur (en gris dans l'illustration ci-dessous) et recouvrir complètement l'anneau extérieur. Fixer le coupe-vapeur en place à l'aide de la courroie (incluse dans le sac de pièces). Pour ce faire, insérer un des ergots de l'anneau extérieur de la bouche à travers le coupe-vapeur et dans le premier trou de la courroie. Ensuite, insérer l'autre ergot à travers le coupe-vapeur et le trou du centre de la courroie. Fermer la courroie en insérant le premier ergot dans le dernier trou de la courroie.

#### ATTENTION

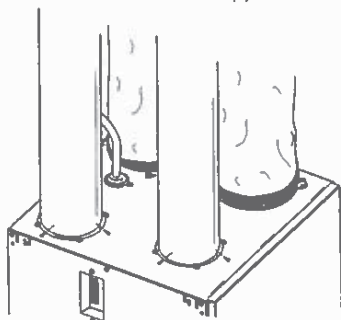
**S'assurer que le coupe-vapeur ne se déchire pas durant l'installation pour éviter que ne se forme de la condensation dans les conduits.**



VJ0074

#### Conduits rigides non isolés

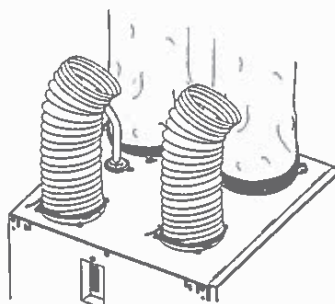
Utiliser des vis à tôle et du ruban à conduits pour raccorder les conduits rigides aux bouches de l'appareil.



VJ0073

#### Conduits flexibles non isolés

Utiliser des attaches autoblocantes pour raccorder les conduits flexibles aux bouches de l'appareil.



## 4. INSTALLATION (SUITE)

### 4.6 INSTALLATION DES DEUX BOUCHES EXTÉRIEURES

Choisir un endroit approprié pour l'installation des bouches extérieures :

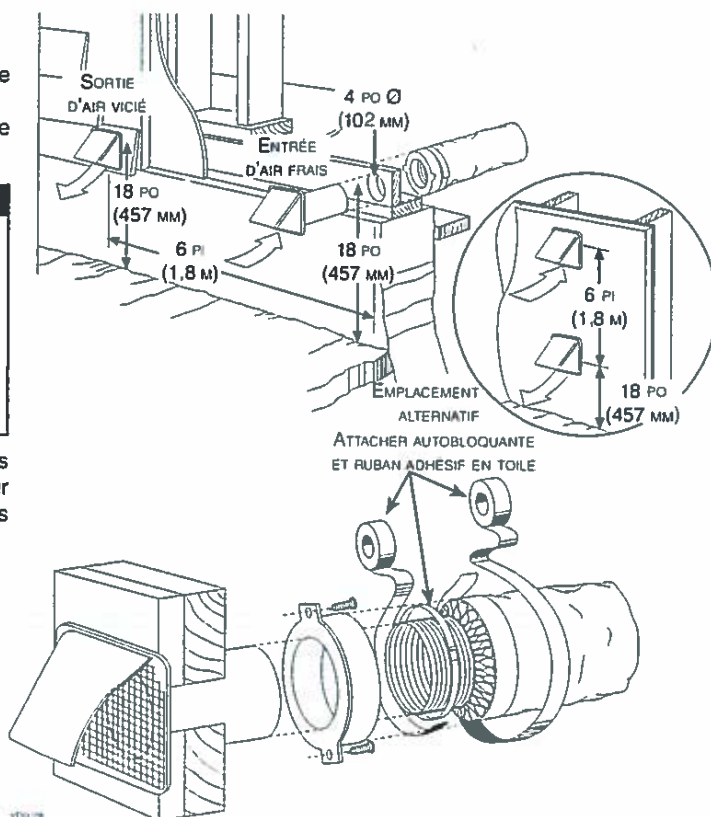
- La distance minimale entre les deux bouches doit être de 6 pi (1,8 m) afin d'éviter l'intercontamination;
- Les bouches doivent se trouver à une distance minimale de 18 po (457 mm) du sol.

#### ⚠ AVERTISSEMENT

S'assurer que la bouche d'entrée d'air se trouve à au moins 6 pi (1,8 m) des éléments suivants :

- Sortie de sècheuse, de fournaise haut rendement, d'aspirateur central;
- Sortie de compteur de gaz, barbecue à gaz;
- Sortie de toute source de combustion;
- Poubelle et toute autre source de contamination.

Consulter l'illustration ci-contre pour relier les conduits isolés aux bouches extérieures. Une bouche « anti-rafale » pour l'aspiration d'air frais devrait être installée dans les régions où il tombe généralement beaucoup de neige.



### 4.7 INSTALLATION DE LA BOUCHE EXTÉRIEURE DOUBLE AU MOYEN DU KIT DE TRANSITION TANDEM®\* (OPTIONNEL)

Si désiré, une bouche extérieure double peut être utilisée au lieu de deux bouches extérieures régulières pour raccorder les conduits isolés. La distance minimale requise entre les solives pour l'installation de la transition Tandem® est de 9 3/4 po. La hauteur maximale de cette transition est de 8 3/4 po. Voir l'illustration ci-contre. Afin de raccorder les conduits flexibles isolés de 4 po aux ouvertures ovales de 5 po de la transition Tandem® (Évacuation d'air vicié et Aspiration d'air frais), raccorder d'abord un adaptateur (non compris) à la transition Tandem®.

Pour chaque raccordement :

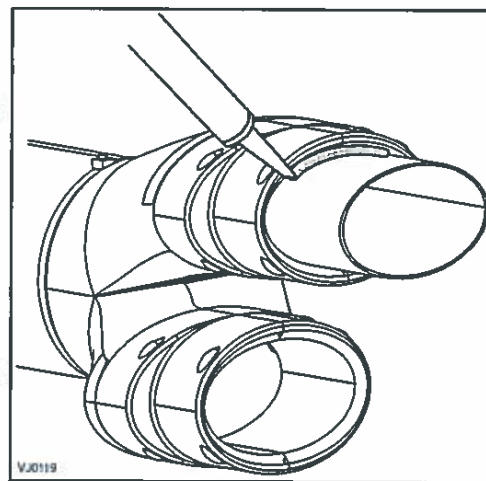
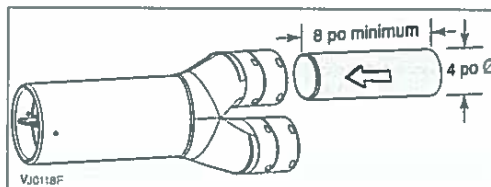
1. Insérer un conduit métallique de 4 po de diamètre d'au moins 8 po de long dans l'ouverture ovale de la transition Tandem® en le pressant légèrement afin de l'écraser. Pousser le conduit jusqu'au fond de l'ouverture.
2. À l'aide de silicone, étancher le joint entre l'extérieur du conduit métallique et la transition Tandem®, puis attendre que le joint soit sec.

#### ATTENTION

Lors du raccordement des conduits flexibles isolés à la transition Tandem®, tirer le conduit flexible interne par-dessus l'adaptateur jusqu'au joint de silicone, et le fixer en place à l'aide d'une attache autobloquante. Tirer l'isolant par-dessus le joint en s'assurant de ne laisser aucune partie sans isolant.

3. Poursuivre l'installation en suivant les instructions incluses dans le kit de transition Tandem® (pièce n° 14690).

\*Brevetée.

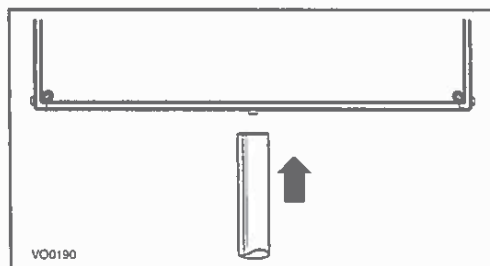


## 4. INSTALLATION (SUITE)

### 4.8 RACCORDEMENT DU BOYAU DE DRAINAGE

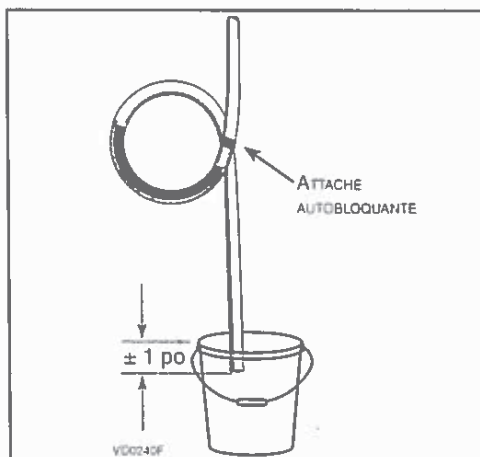
#### ATTENTION

Un boyau de drainage (inclus) doit être installé pour tous les appareils VRC. Il n'est pas requis pour les appareils VRE, cependant il est recommandé dans les climats où la température extérieure demeure sous -25 °C (-13 °F) (24 heures par jour), durant plusieurs jours d'affilée, combinée à un taux d'humidité intérieur de 40% et plus.



Relier le boyau de plastique au raccord de drain interne situé sous l'appareil, tel qu'il est illustré.

NOTE : Pour les appareils VRE, retirer le bouchon de drain à l'extérieur de l'appareil avant d'installer le boyau de drainage.



Faire une boucle dans le boyau pour retenir l'eau afin d'empêcher que l'appareil n'aspire de mauvaises odeurs. Raccorder le boyau au drain du sous-sol ou à un seau.

#### IMPORTANT

Si un seau est utilisé pour recueillir l'eau, placer le bout du boyau à environ 1 po du bord du seau afin d'éviter que l'eau ne remonte dans l'appareil.

## 5. COMMANDES

Tous les appareils sont munis d'une commande intégrée, située sur le côté gauche de l'appareil, en haut. Brancher l'appareil.

### 5.1 SÉQUENCE DE DÉMARRAGE

La séquence de démarrage de l'appareil est similaire à une séquence de démarrage d'un ordinateur personnel. À toutes les fois où l'on rebranche l'appareil, ou après une panne de courant, l'appareil effectuera une séquence de démarrage d'une durée de 30 secondes avant de commencer à fonctionner.

Durant cette séquence, le voyant de la commande intégrée éclairera en VERT durant 5 secondes, puis passera au ROUGE pour le reste de la séquence de démarrage. Durant cette dernière phase, l'appareil vérifie et ajuste la position du volet motorisé. Une fois cette opération terminée, le voyant ROUGE s'éteint pour indiquer que la séquence de démarrage est maintenant complétée.

NOTE : L'appareil ne peut répondre aux commandes tant que la séquence de démarrage de l'appareil n'est pas complétée.

### 5.2 COMMANDE INTÉGRÉE

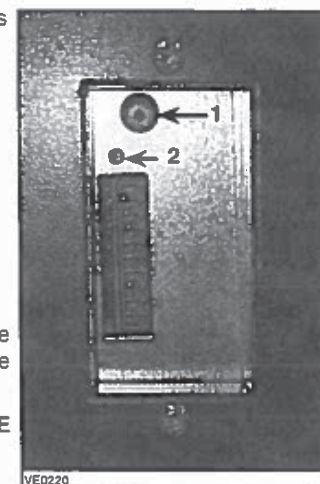
Utiliser le bouton-poussoir (1) pour contrôler l'appareil. Le voyant lumineux (2) vous indiquera dans quel mode l'appareil se trouve.

Consulter le tableau ci-dessous pour voir comment faire fonctionner l'appareil à l'aide de sa commande intégrée.

APPUYER SUR LE BOUTON-POUSOIR	COULEUR DU VOYANT	RÉSULTATS
UNE FOIS	AMBRE	L'APPAREIL EST EN BASSE VITESSE
DEUX FOIS	VERT	L'APPAREIL EST EN HAUTE VITESSE
TROIS FOIS	VOYANT ÉTEINT	L'APPAREIL EST ARRÊTÉ

S'il survient un problème lors du fonctionnement de l'appareil, le voyant lumineux de sa commande intégrée (2) clignotera. La couleur du clignotant dépend du type d'erreur détectée. Pour plus de détails, consulter la section 9 Dépannage à la page 21.

NOTE : LORSQU'UNE COMMANDE PRINCIPALE EST UTILISÉE, LA COMMANDE INTÉGRÉE DE L'APPAREIL DOIT ÊTRE EN MODE ARRÊT.





## 5. COMMANDES (SUITE)

### 5.3 RÉGLAGE DU DÉGIVRAGE PROLONGÉ

Ces appareils sont pré-réglés en usine en dégivrage normal. En région froide (température extérieure de -27 °C [-17 °F] et plus basse), il peut être nécessaire de régler les appareils en dégivrage prolongé. Lors des 2 premières secondes de la séquence de démarrage, quand le voyant est au VERT, appuyer sur le bouton-poussoir jusqu'à ce que le voyant clignote AMBRE (environ 3 secondes). Puis, le voyant s'éteindra, pour s'allumer ensuite en ROUGE (l'appareil retourne à sa séquence de démarrage).

### 5.4 BRANCHEMENT DES COMMANDES PRINCIPALES

Pour plus de commodité, ces appareils peuvent aussi être contrôlés à l'aide d'une commande principale optionnelle.

NOTES : 1. Lorsqu'une commande principale optionnelle est utilisée, la commande intégrée de l'appareil doit être en mode arrêt.

2. Si une commande auxiliaire optionnelle est utilisée, son fonctionnement prévaut sur celui de la commande principale

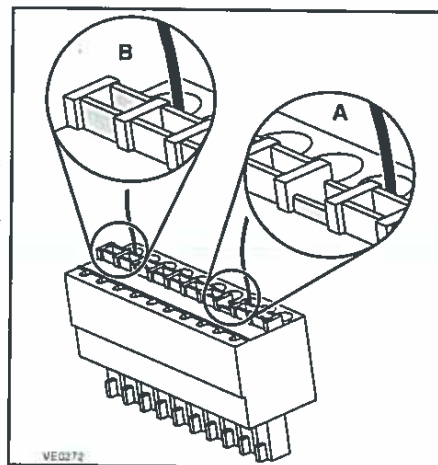
#### ⚠ AVERTISSEMENT

Toujours débrancher l'appareil avant d'effectuer toutes connexions. Le fait de ne pas débrancher l'appareil pourrait créer un choc électrique, endommager l'appareil, la commande murale, ou le module électronique à l'intérieur de l'appareil.

#### ATTENTION

Ne jamais installer plus d'une commande murale principale par appareil. S'assurer qu'il n'y ait aucun court-circuit entre les fils ou entre les fils et une autre composante de la commande murale. Éviter les connexions relâchées. Afin de diminuer les risques potentiels d'interférence électrique (parasites), ne pas faire cheminer le fil de la commande murale près de contacteurs de contrôle ou près de circuits gradateur d'éclairage, moteurs électriques, câblage électrique de la maison, ou panneau de distribution de courant.

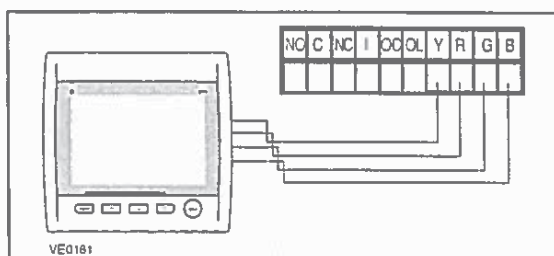
Utiliser le bornier inclus dans le kit d'installation pour effectuer le branchement de la commande principale optionnelle ainsi que des commandes auxiliaires optionnelles. S'assurer que les fils soient insérés correctement dans leur réceptacle de bornier correspondant. (Un fil est inséré correctement lorsque le réceptacle orange est plus bas qu'un autre réceptacle sans fil. Sur la photo ci-contre, le fil A est correctement inséré, mais le fil B ne l'est pas.)



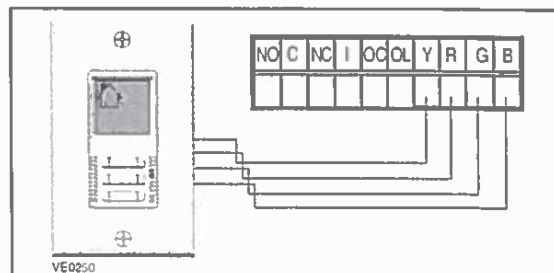
## 5. COMMANDES (SUITE)

### 5.4 BRANCHEMENT DES COMMANDES PRINCIPALES (SUITE)

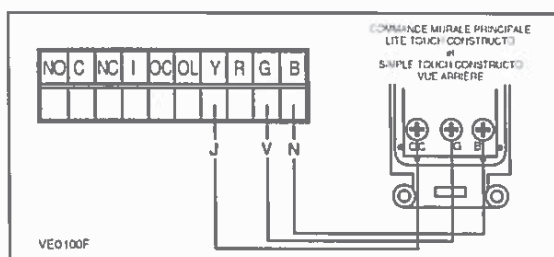
#### 5.4.1 BRANCHEMENT DE LA COMMANDE PRINCIPALE ALTITUDE (APPAREILS K7 ERV, K8 HRV ET K10 HRV SEULEMENT) OU PLATINUM (APPAREILS 40E, 40H+ ET 50H SEULEMENT)



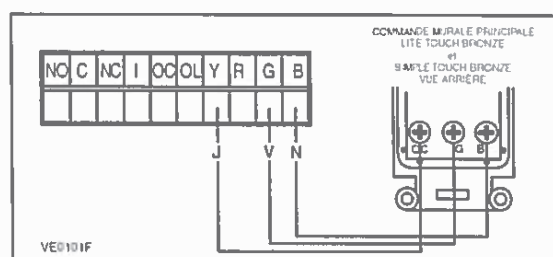
#### 5.4.2 BRANCHEMENT DE LA COMMANDE PRINCIPALE DECO-TOUCH (TOUS LES APPAREILS)



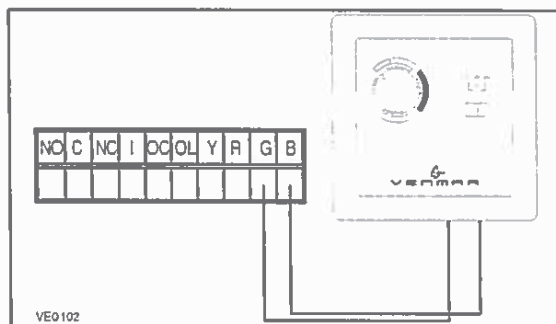
#### 5.4.3 BRANCHEMENT DE LA COMMANDE PRINCIPALE LITE-TOUCH CONSTRUCTO OU SIMPLE-TOUCH CONSTRUCTO (APPAREILS K7 ERV, K8 HRV ET K10 HRV SEULEMENT)



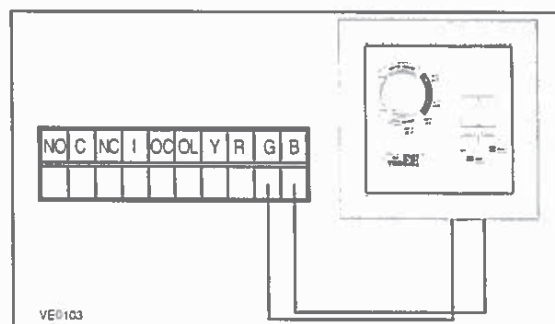
#### 5.4.4 BRANCHEMENT DE LA COMMANDE PRINCIPALE LITE-TOUCH BRONZE OU SIMPLE-TOUCH BRONZE (APPAREILS 40E, 40H+ ET 50H SEULEMENT)



#### 5.4.5 BRANCHEMENT DE LA COMMANDE PRINCIPALE CONSTRUCTO (APPAREILS K7 ERV, K8 HRV ET K10 HRV SEULEMENT)



#### 5.4.6 BRANCHEMENT DE LA COMMANDE PRINCIPALE BRONZE (APPAREILS 40E, 40H+ ET 50H SEULEMENT)

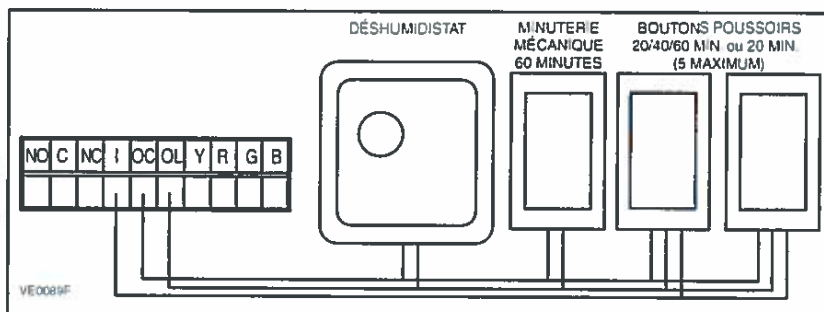




## 5. COMMANDES (SUITE)

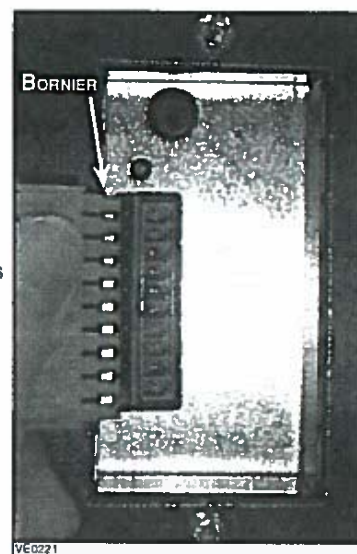
### 5.5 BRANCHEMENT DES COMMANDES AUXILIAIRES OPTIONNELLES

NOTE : Si le Déshumidistat est activé et qu'ensuite une commande auxiliaire optionnelle est activée, le fonctionnement de celle-ci prévaudra sur celui du Déshumidistat.



Une fois le branchement de la (ou des) commande(s) effectué, insérer le bornier dans l'interface du compartiment électrique.

NOTE : Pour connaître le fonctionnement des commandes murales, consulter le guide de l'utilisateur.



## 6. RACCORDEMENT ÉLECTRIQUE À LA FOURNAISE

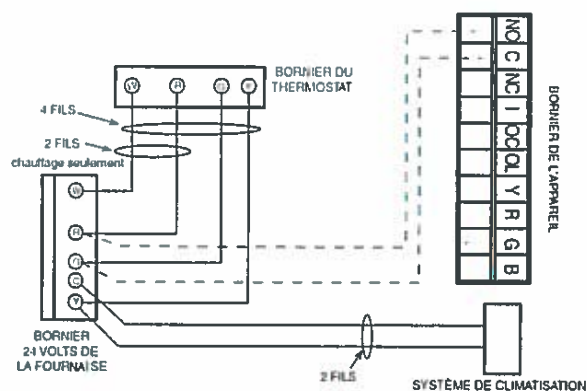
### ⚠ AVERTISSEMENT

Ne jamais brancher un circuit 120 volts ca aux bornes du câblage de la fournaise (méthode standard). Utiliser seulement le circuit classe 2 du ventilateur de la fournaise.

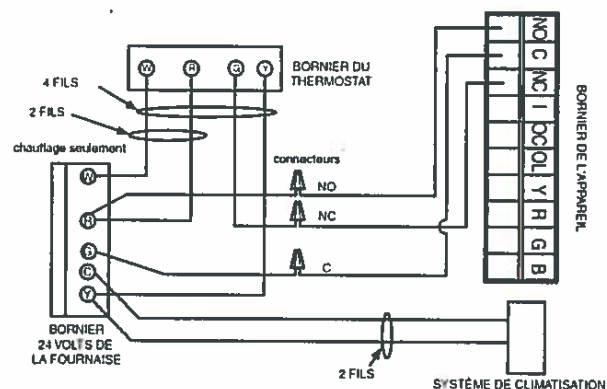
#### Pour une fournaise raccordée au système de climatisation :

Sur certains vieux thermostats, la mise sous tension des bornes « R » et « G » à la fournaise a pour effet de mettre sous tension « Y » au thermostat et, par conséquent, d'activer le système de climatisation. Si vous identifiez ce genre de thermostat, vous devez utiliser la METHODE ALTERNATIVE DE CÂBLAGE SYNCHRONISÉ AVEC LA FOURNAISE.

#### MÉTHODE STANDARD DE CÂBLAGE SYNCHRONISÉ AVEC LA FOURNAISE



#### MÉTHODE ALTERNATIVE DE CÂBLAGE SYNCHRONISÉ AVEC LA FOURNAISE

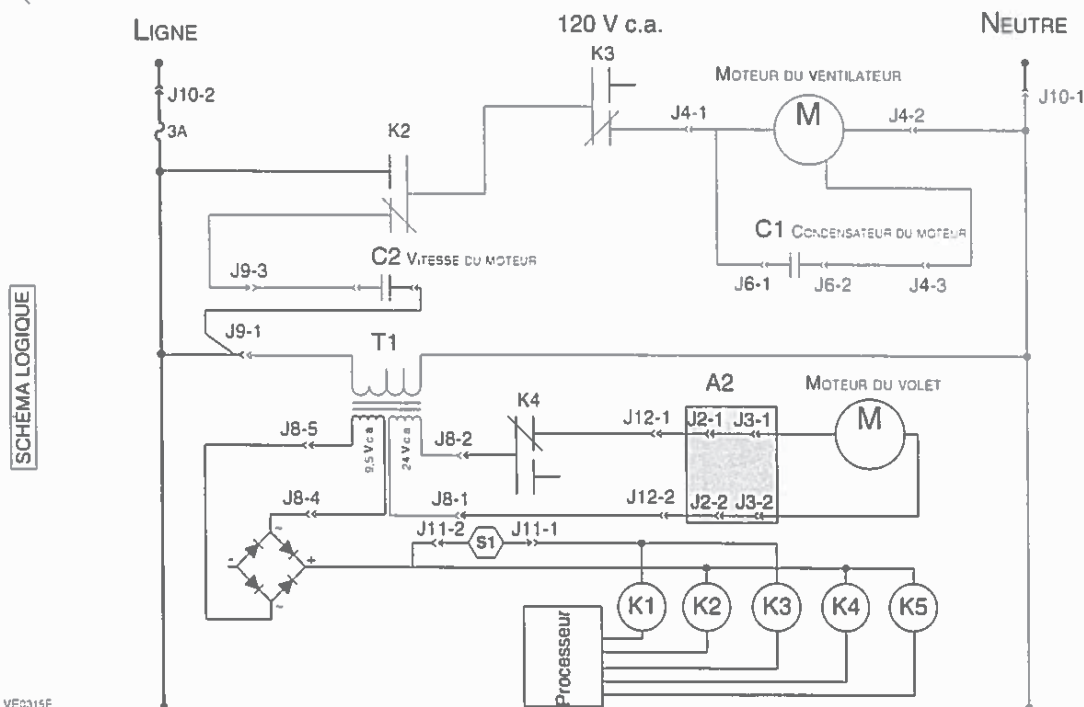
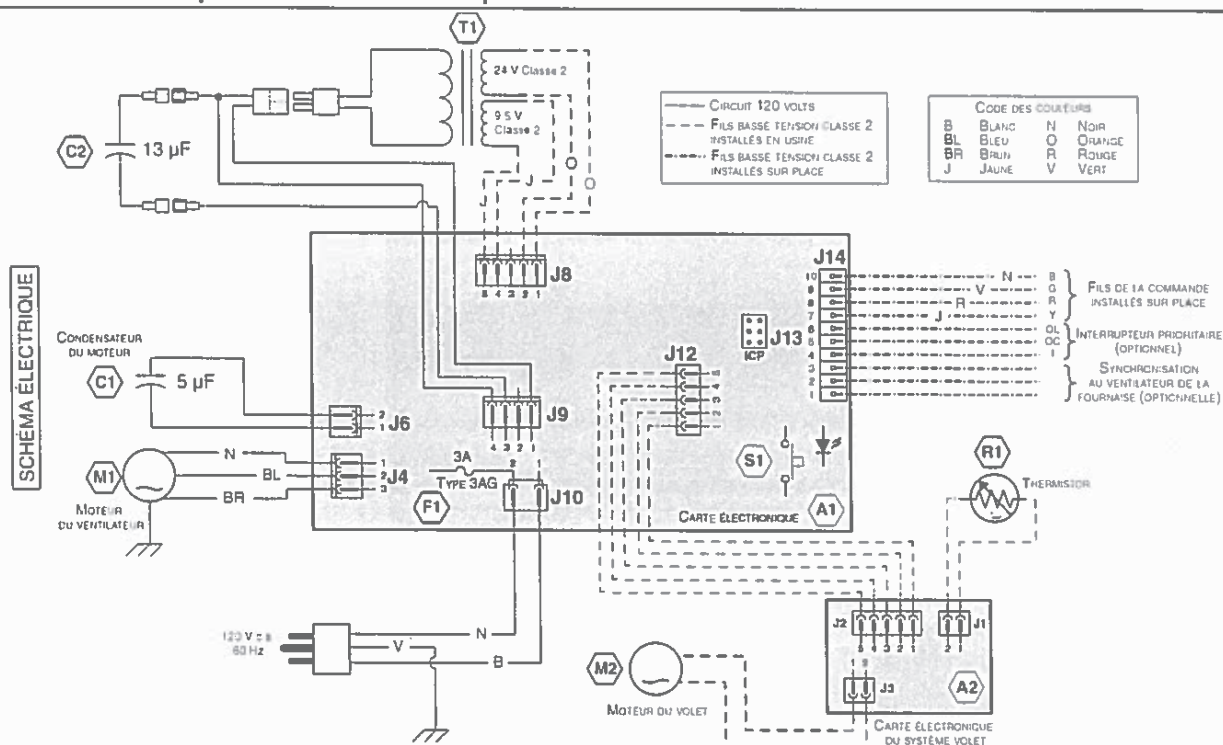


## 7. SCHÉMA ÉLECTRIQUE

### 7.1 APPAREILS K7 ERV ET 40E

#### ⚠ AVERTISSEMENT

- Danger d'électrocution. Toujours débrancher l'appareil avant d'effectuer les travaux d'entretien ou de réparation.
- Cet appareil est muni d'une protection contre les surcharges (fusible). Un fusible brûlé indique une surcharge ou un court-circuit. Si le fusible brûle, débrancher l'appareil de la prise. Remplacer le fusible selon les instructions de service (respecter les spécifications inscrites sur le schéma électrique de l'appareil) et vérifier l'appareil. Si le fusible remplacé brûle à nouveau, il peut s'agir d'un court-circuit et l'appareil doit être jeté ou retourné au centre de service autorisé pour l'examen et/ou la réparation.

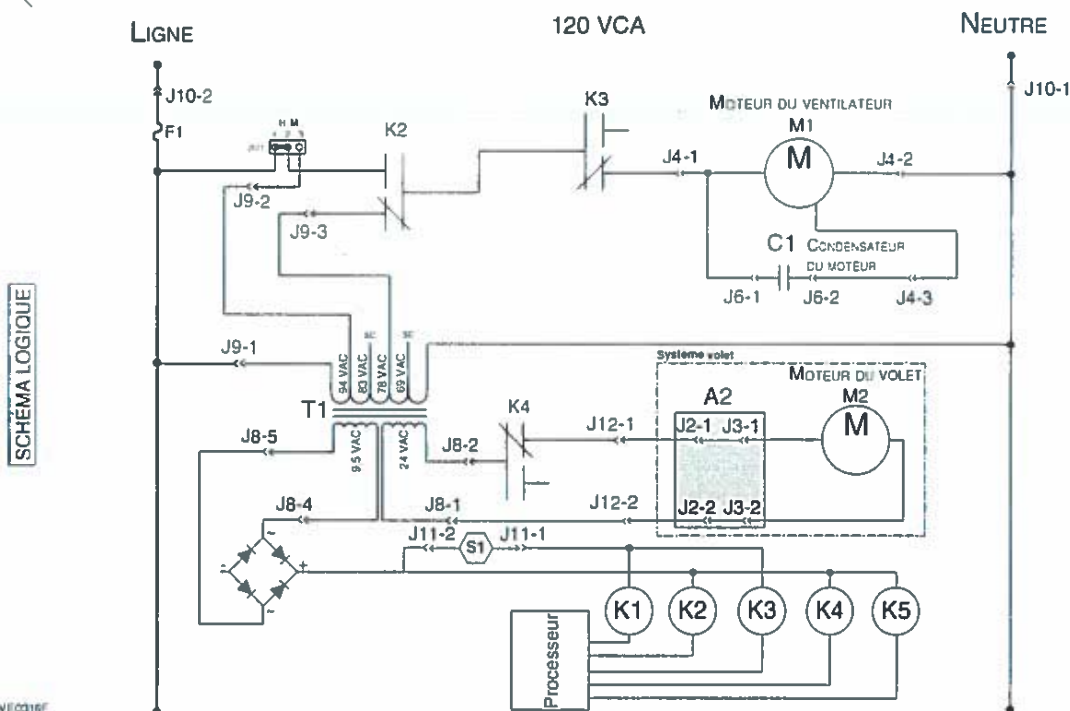
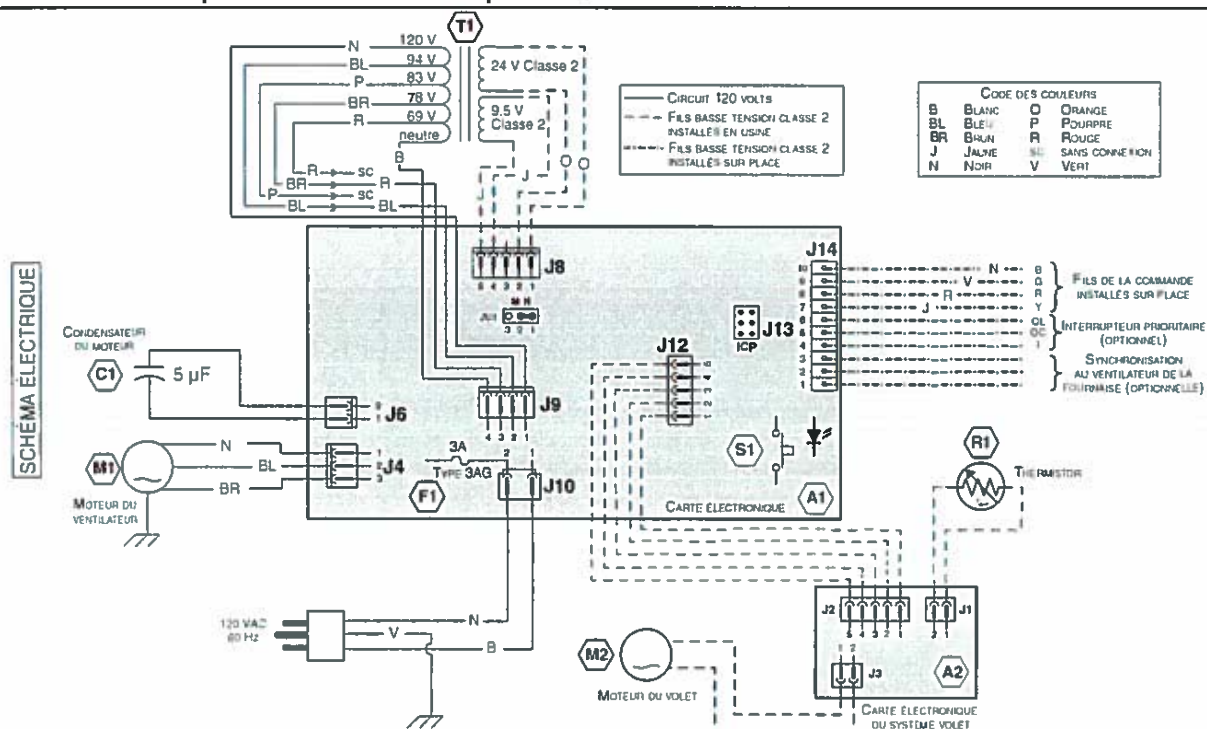


## 7. SCHÉMA ÉLECTRIQUE (SUITE)

### 7.2 APPAREILS K8 HRV ET 40H+

#### ⚠ AVERTISSEMENT

- Danger d'électrocution. Toujours débrancher l'appareil avant d'effectuer les travaux d'entretien ou de réparation.
- Cet appareil est muni d'une protection contre les surcharges (fusible). Un fusible brûlé indique une surcharge ou un court-circuit. Si le fusible brûle, débrancher l'appareil de la prise. Remplacer le fusible selon les instructions de service (respecter les spécifications inscrites sur le schéma électrique de l'appareil) et vérifier l'appareil. Si le fusible remplacé brûle à nouveau, il peut s'agir d'un court-circuit et l'appareil doit être jeté ou retourné au centre de service autorisé pour l'examen et/ou la réparation.

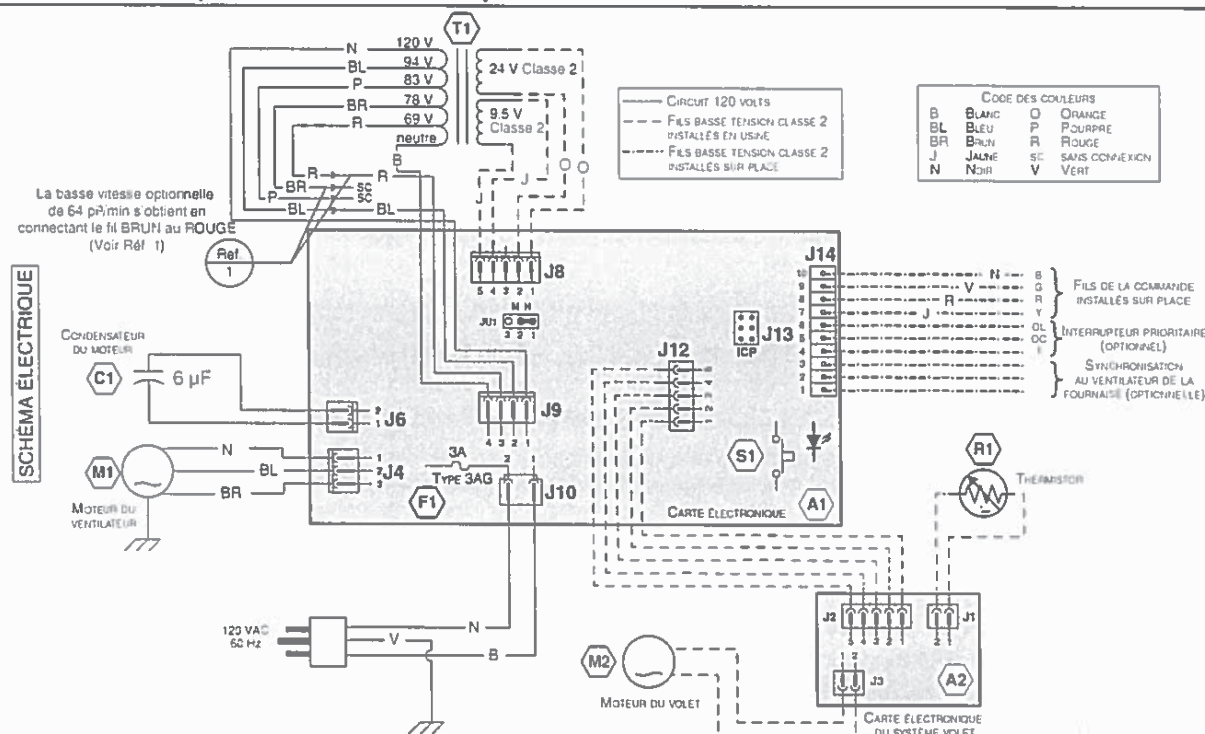


## 7. SCHÉMA ÉLECTRIQUE (SUITE)

### 7.3 APPAREILS K10 HRV ET 50H

#### ⚠ AVERTISSEMENT

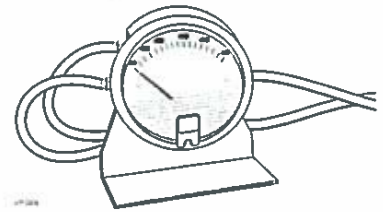
- Danger d'électrocution. Toujours débrancher l'appareil avant d'effectuer les travaux d'entretien ou de réparation.
- Cet appareil est muni d'une protection contre les surcharges (fusible). Un fusible brûlé indique une surcharge ou un court-circuit. Si le fusible brûle, débrancher l'appareil de la prise. Remplacer le fusible selon les instructions de service (respecter les spécifications inscrites sur le schéma électrique de l'appareil) et vérifier l'appareil. Si le fusible remplacé brûle à nouveau, il peut s'agir d'un court-circuit et l'appareil doit être jeté ou retourné au centre de service autorisé pour l'examen et/ou la réparation.



## 8. ÉQUILIBRAGE DE L'APPAREIL

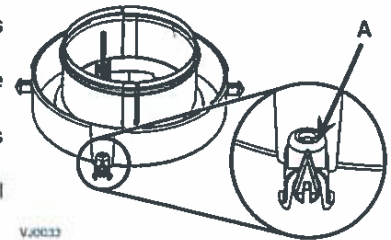
### 8.1 CE QU'IL FAUT POUR ÉQUILIBRER L'APPAREIL

- Un manomètre pouvant mesurer de 0 à 0,5 pouce d'eau (0 à 125 Pa) et 2 tubes de raccordement en plastique.
- Le tableau d'équilibrage de l'appareil, **situé sur la porte de celui-ci.**



### 8.2 ÉTAPES PRÉLIMINAIRES À L'ÉQUILIBRAGE DE L'APPAREIL

- Sceller tous les conduits du réseau avec du ruban à conduit. Fermer toutes les portes et fenêtres.
- Faire cesser le fonctionnement de tous les dispositifs d'évacuation d'air tels que hotte de cuisinière, ventilateurs de salle de bains ou sècheuse.
- S'assurer que les volets d'équilibrage intégrés sont complètement ouverts (les tiges de réglage [A] doivent être à la verticale, tel qu'il est illustré ci-contre).
- S'assurer que tous les filtres sont propres (si ce n'est pas la première fois que l'appareil est équilibré).



### 8.3 PROCÉDURE D'ÉQUILIBRAGE

#### 1. Régler l'appareil en haute vitesse.

NOTE : Si l'installation est reliée de quelque façon que ce soit avec le conduit de retour d'air frais de la fournaise, s'assurer que le ventilateur de cette fournaise est en marche. Si non, ne pas faire fonctionner le ventilateur de fournaise. Si la température extérieure se situe sous 0 °C/32 °F, s'assurer que l'appareil n'est pas en mode de dégivrage lors de l'équilibrage. (Attendre 10 minutes après avoir branché l'appareil pour s'assurer qu'il n'est pas en mode de dégivrage.)

2. Installer le manomètre sur une surface nivelée et le régler à zéro.
3. Relier les tubes du manomètre aux prises de pression du flux d'air VICIÉ (voir le schéma sur la porte de l'appareil).  
S'assurer de relier les tubes aux raccords high/low correspondants. Si l'aiguille du manomètre tombe en dessous de zéro, inverser les branchements.
4. Noter la valeur en  $\text{pi}^3/\text{min}$  selon le tableau d'équilibrage sur l'appareil.
5. Répéter les étapes 3 et 4, en déplaçant les tubes du manomètre aux prises de pression du flux d'air FRAIS.
6. Faire correspondre la valeur en  $\text{pi}^3/\text{min}$  la plus élevée à la valeur en  $\text{pi}^3/\text{min}$  la plus basse en tournant la tige d'ajustement du volet de balancement correspondant à la valeur la plus élevée.

Voir l'exemple ci-dessous :

PRESSION	FRAIS	VICIÉ
PO D'EAU	$\text{pi}^3/\text{MIN}$	$\text{pi}^3/\text{MIN}$
0,16	47	42
0,18	54	48
<u>0,2</u>	60	55
<u>0,22</u>	66	<u>61</u>
0,24	72	68
<u>0,26</u>	<u>78</u>	74
0,28	84	81
0,3	90	88

LECTURE  
DES VALEURS  
D'AIR VICIÉ

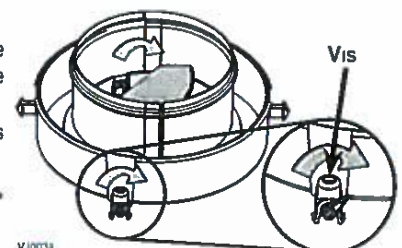
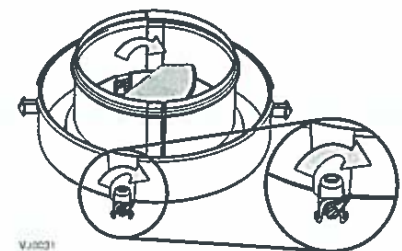
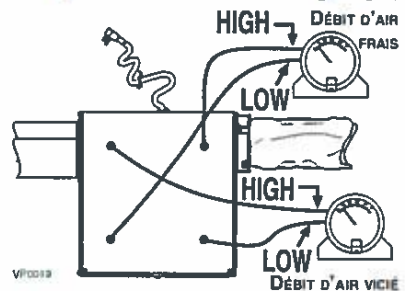
LECTURE  
DES VALEURS  
D'AIR FRAIS

Dans ce cas, il y a 78  $\text{pi}^3/\text{min}$  d'air FRAIS et 61  $\text{pi}^3/\text{min}$  d'air VICIÉ. Ajuster (fermer) le volet d'équilibrage d'air FRAIS jusqu'à ce que le débit d'air FRAIS corresponde au débit d'air VICIÉ : 60  $\text{pi}^3/\text{min}$  (0,2 po d'eau) avec le manomètre connecté aux prises de pression d'air FRAIS).

7. Maintenir les deux volets en place à l'aide d'une vis (incluse dans le sac de pièces).
8. Noter les données concernant le débit d'air sur une étiquette et la placer près de l'appareil pour référence ultérieure (date, vitesse maximale des débits d'air, votre nom, numéro de téléphone et adresse professionnelle).

NOTES : 1. Utiliser la charte de conversion incluse avec l'appareil pour convertir les mesures prises par le manomètre en  $\text{pi}^3/\text{min}$ .

2. À une différence de  $\pm 10 \text{ pi}^3/\text{min}$  (ou  $\pm 5 \text{ l/s}$  ou  $17 \text{ m}^3/\text{h}$ ) entre les 2 lectures, le débit est considéré équilibré.





## 9. DÉPANNAGE

Si l'appareil ne fonctionne pas correctement, effectuer une réinitialisation en le débranchant pour une minute puis en le rebranchant. Si l'appareil ne fonctionne toujours pas correctement, consulter le tableau ci-dessous.

S'il survient un problème lors du fonctionnement de l'appareil, le voyant lumineux de l'appareil va clignoter. La couleur du clignotant dépend du type d'erreur détectée.

Signal	Type d'erreur	Action	État de l'appareil
Voyant clignote VERT	Erreur du thermistor	Remplacer le système volet	L'appareil fonctionne mais dégivrera fréquemment
Voyant clignote AMBRE	Erreur de volet	Aller au point 6	L'appareil ne fonctionne pas.

	Problèmes	Causes possibles	Essayez ceci
1	Le code d'erreur E1 s'affiche sur l'écran de la commande murale Altitude, Platinum ou Deco-Touch.	<ul style="list-style-type: none"> <li>Les fils peuvent être inversés.</li> <li>Les fils peuvent être brisés.</li> <li>Les fils peuvent être mal branchés à l'appareil.</li> </ul>	<ul style="list-style-type: none"> <li>S'assurer que le code des couleurs a été respecté lors du branchement des fils aux bornes correspondantes.</li> <li>Inspecter chaque fil et remplacer les endommagés.</li> <li>Vérifier la connexion des fils.</li> </ul>
2	La température extérieure ne s'affiche pas sur l'écran de la commande murale Altitude ou Platinum — —.	<ul style="list-style-type: none"> <li>Le thermistor est défectueux (le voyant lumineux de la commande intégrée de l'appareil doit clignoter VERT).</li> </ul>	<p>NOTE : Au premier démarrage ou après une panne de courant, quelques minutes sont nécessaires avant que la température extérieure ne s'affiche à l'écran. Le délai le plus court est obtenu lorsque la commande est réglée à MIN ou à MAX du Mode VENT.</p> <ul style="list-style-type: none"> <li>Remplacer le système volet.</li> </ul>
3	L'écran de la commande murale Altitude, Platinum ou Deco-Touch alterne entre l'affichage normal et E3.	<ul style="list-style-type: none"> <li>La commande murale Altitude, Platinum ou Deco-touch peut être défectueuse.</li> </ul>	<ul style="list-style-type: none"> <li>Remplacer la commande murale Altitude, Platinum ou Deco-Touch.</li> </ul>
4	Il y a un important écart entre la température affichée à la commande murale Altitude ou Platinum et la température réelle.	<ul style="list-style-type: none"> <li>Le thermistor de l'appareil est défectueux.</li> <li>Le volet de l'appareil est bloqué ou brisé.</li> </ul>	<ul style="list-style-type: none"> <li>Remplacer le thermistor.</li> <li>Vérifier le fonctionnement du volet; le remplacer si nécessaire.</li> </ul>
5	L'appareil ne fonctionne pas.	<ul style="list-style-type: none"> <li>La carte de l'appareil peut être défectueuse.</li> <li>Le fusible peut être défectueux.</li> </ul>	<ul style="list-style-type: none"> <li>Débrancher l'appareil. Débrancher la commande murale optionnelle et les auxiliaires (le cas échéant). <small>VE0097</small></li> <li>Cour-circuiter les bornes <b>Get B</b>. Rebrancher l'appareil et attendre environ 10 secondes. Si les moteurs passent en haute vitesse et que le volet ouvre, la carte n'est pas défectueuse.</li> <li>Vérifier si le fusible F1 (sur la carte électronique) est brûlé. Si oui, le remplacer selon le schéma électrique du produit.</li> </ul>
6	La commande murale ne fonctionne pas.	<ul style="list-style-type: none"> <li>La commande intégrée réglée en haute ou basse vitesse (DEL allumée en continu AMBRE ou VERT).</li> <li>Appareil non compatible avec la commande.</li> <li>Les fils peuvent être inversés.</li> <li>Les fils peuvent être mal branchés.</li> <li>Les fils peuvent être endommagés.</li> <li>Commande murale défectueuse.</li> </ul>	<ul style="list-style-type: none"> <li>Appuyer sur le bouton-poussoir de la commande intégrée jusqu'à ce que la DEL s'éteigne.</li> <li>Consulter le tableau en page 2 pour la compatibilité des commandes.</li> <li>S'assurer que le code des couleurs a été respecté lors du branchement des fils aux bornes correspondantes.</li> <li>Vérifier la connexion des fils.</li> <li>Inspecter chaque fil et remplacer les endommagés.</li> <li>Remplacer la commande murale.</li> </ul>

## 9. DÉPANNAGE (SUITE)

	Problèmes	Causes possibles	Essayez ceci
7	Le système volet ne fonctionne pas (code d'erreur AMBRE).	<p><b>La DEL n'est pas allumée en ROUGE au démarrage de l'appareil.</b>  <b>Au démarrage de l'appareil, la DEL allume en ROUGE, un clic provient du compartiment électrique, mais le volet ne bouge pas:</b></p> <ul style="list-style-type: none"> <li>De la glace ou des débris entravent le mouvement du volet.</li> <li>J12 non branché ou mauvais contact.</li> <li>Mauvaise connexion de J8.</li> <li>Le transformateur peut être défectueux (pas de 24 VCA entre J8-1 et J8-2).</li> </ul> <p><b>Le servomoteur du volet est défectueux.</b>  <b>Au démarrage de l'appareil, le volet bouge mais ne s'arrête pas quand il devrait:</b></p> <ul style="list-style-type: none"> <li>La rotation du moteur est inversée.</li> <li>Mauvaise connexion du connecteur J12.</li> <li>Carte du système volet défectueuse ou engrenage du servomoteur du volet endommagé.</li> <li>La carte principale est défectueuse.</li> </ul>	<ul style="list-style-type: none"> <li>Voir le point 5.</li> <li>Retirer la glace ou les débris.</li> <li>Vérifier la connexion de J12 (autant du côté des fils que de la carte).</li> <li>Vérifier la connexion de J8.</li> <li>Avec l'appareil sous tension et J9 connecté, vérifier si la tension est d'environ 20-24 VCA entre le connecteur du transformateur J8-1 et J8-2 (fils ORANGE). Si non, remplacer le transformateur.</li> <li>Remplacer le système volet.</li> <li>Lorsque l'on fait face à l'arbre du moteur, la rotation de celui-ci est contraire à celle des aiguilles d'une montre. Si non, remplacer le système volet.</li> <li>Vérifier la connexion de J12 (autant du côté des fils que de la carte).</li> <li>Remplacer le système volet.</li> <li>Remplacer la carte principale.</li> </ul>
8	Le Déshumidistat ne fonctionne pas OU une autre commande auxiliaire optionnelle ne fonctionne pas OU son voyant lumineux ne reste pas allumé.	<ul style="list-style-type: none"> <li>Les fils peuvent être inversés.</li> <li>Les fils peuvent être mal branchés.</li> <li>Les fils peuvent être endommagés.</li> <li>Le Déshumidistat ou bouton poussoir est peut-être défectueux.</li> </ul>	<ul style="list-style-type: none"> <li>S'assurer que le code des couleurs a été respecté lors du branchement des fils aux bornes correspondantes.</li> <li>Vérifier la connexion des fils.</li> <li>Inspecter chaque fil et remplacer les endommagés. Si les fils sont cachés dans un mur, tester la commande avec un fil plus court.</li> <li>Court-circuiter les bornes OL et OC. Si l'appareil passe en haute vitesse retirer le Déshumidistat ou le bouton-poussoir et le tester près de l'appareil avec un autre fil plus court. Si la commande fonctionne, changer le fil. Sinon, remplacer le Déshumidistat ou le bouton-poussoir.</li> </ul>
9	Le moteur du ventilateur ne fonctionne pas.	<ul style="list-style-type: none"> <li>Le fusible peut être défectueux.</li> <li>Le moteur ou le condensateur peut être défectueux.</li> </ul> <p>NOTE : L'appareil doit être débranché pour effectuer ce test.</p>	<ul style="list-style-type: none"> <li>Vérifier si le fusible F1 (sur la carte électronique) est brûlé. Si oui, le remplacer selon le schéma électrique du produit.</li> <li>Avec un multimètre, vérifier la valeur en ohms de chaque connecteur de moteur. Pour les fils BLEU et NOIR, la bonne valeur est de <math>\pm 68</math> ohms. Pour les fils BLEU et BRUN, la bonne valeur est de <math>\pm 58</math> ohms. Pour les fils BRUN et NOIR, la bonne valeur est de <math>\pm 126</math> ohms. Si les valeurs en ohms sont les mêmes, le moteur n'est pas défectueux. Remplacer le condensateur de moteur.</li> </ul>

## 10. SUPPORT TECHNIQUE

POUR OBTENIR DE L'AIDE, TÉLÉPHONER DU LUNDI AU VENDREDI, DE 8 H 30 À 17 H (HEURE NORMALE DE L'EST).

NOTE : CES NUMÉROS DE TÉLÉPHONE SONT RÉSERVÉS À L'USAGE EXCLUSIF DES INSTALLATEURS. NE PAS UTILISER CES NUMÉROS POUR COMMANDER DES PIÈCES.

APPAREILS VENMAR : 1 800 649-0372 (SANS FRAIS)

APPAREILS VÂNEE : 1 888 908-2633 (SANS FRAIS)

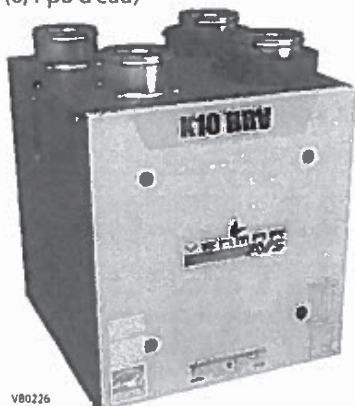


### Venmar K10 HRV

Produit n° 44500 (BOUCHES SUR LE DESSUS)

Produit n° 44502 (BOUCHES LATÉRALES)

47 à 90 pi<sup>3</sup>/min (0,4 po d'eau)



VB0226

### UN CUBE AVEC DU CARACTÈRE

Le K10 HRV offre le débit d'air le plus élevé de la série K, lui permettant de répondre aux besoins en ventilation d'habitations plus grandes, tout en étant aussi facile à installer que les autres modèles de la même série. En effet, grâce à sa taille compacte et à ses bouches verticales ou horizontales de 4 pouces, il peut être installé dans de petits espaces tels qu'un garde-robe ou au-dessus d'un réservoir d'eau chaude dans une chambre à fournaise. Le K10 HRV est muni d'un seul ventilateur, il est donc plus silencieux que tout autre VRC semblable sur le marché.

- À seulement 30 lb (13,6 kg), il peut être installé sans avoir à ouvrir l'appareil
- Doté de prises de pression, de volets d'équilibrage, de crochets intégrés et de courroies pour raccorder les conduits aux bouches afin d'en simplifier l'installation
- Bornier amovible facilitant le branchement des commandes murales principales et auxiliaires
- Homologué ENERGY STAR®

### ENTRETIEN

Toutes les pièces du K10 HRV qui pourraient avoir besoin d'entretien peuvent être retirées en moins de 5 minutes, permettant un accès rapide pour un entretien facile. Le moteur, doté d'un condensateur permanent, est lubrifié à vie.

### GARANTIE

Le K10 HRV est couvert par une garantie de 5 ans sur les pièces seulement, tandis que le noyau de récupération de chaleur est couvert par une garantie à vie limitée avec la preuve d'achat originale.

Offert chez:

## VENTILATEUR RÉCUPÉRATEUR DE CHALEUR

### Commandes

- Le fonctionnement de cet appareil est la simplicité même. Une fois installé, appuyer sur le bouton-poussoir situé sur le côté supérieur gauche de l'appareil afin de sélectionner la haute ou la basse vitesse ou pour arrêter l'appareil (le ventilateur est arrêté, mais se mettra en marche en réponse au signal de la commande murale). Le voyant DEL (situé sous le bouton-poussoir) affichera alors le mode de l'appareil.
- Pour plus de commodité, cet appareil peut aussi être contrôlé par une commande principale optionnelle. Consulter le tableau de **Compatibilité des commandes murales** (en dernières pages de la fiche technique des commandes) pour la liste complète des commandes principales et auxiliaires optionnelles disponibles, sur [www.venmar.ca](http://www.venmar.ca).
- Pour plus de détails sur les commandes, veuillez consulter le guide d'utilisation des **Commandes principales et auxiliaires** sur [www.venmar.ca](http://www.venmar.ca).

### Options

- Gamme complète de grilles et de diffuseurs
- Chauffage d'appoint électrique
- Support de montage mural exclusif n° 19255

### Système de dégivrage

Le K10 HRV utilise une méthode de dégivrage par recirculation qui maintient une pression d'air équilibrée dans la maison. S'il y a une demande de ventilation par une commande murale auxiliaire pendant le cycle de dégivrage, celui-ci est mis en attente tandis que l'air est échangé, assurant ainsi que l'air humide n'est pas recirculé.

TEMPÉRATURE EXTÉRIEURE		CYCLE DE DÉGIVRAGE MIN./ FONCTIONNEMENT MIN.
°C	°F	
PLUS CHAUD QUE -5	PLUS CHAUD QUE 23	PAS DE DÉGIVRAGE
-5 A -15	23 A 5	5/30
-15 A -27	5 A -17	5/20
-27 ET MOINS	-17 ET MOINS	7/15

### Noyau de récupération de chaleur

Dimensions: 10 po x 10 po x 5,5 po (25,4 cm x 25,4 cm x 14 cm)

Surface utile: 42,3 pi<sup>2</sup> (3,9 m<sup>2</sup>)

Poids: 4 lb (1,8 kg)

Matière: Polypropylène

Type: Courants croisés

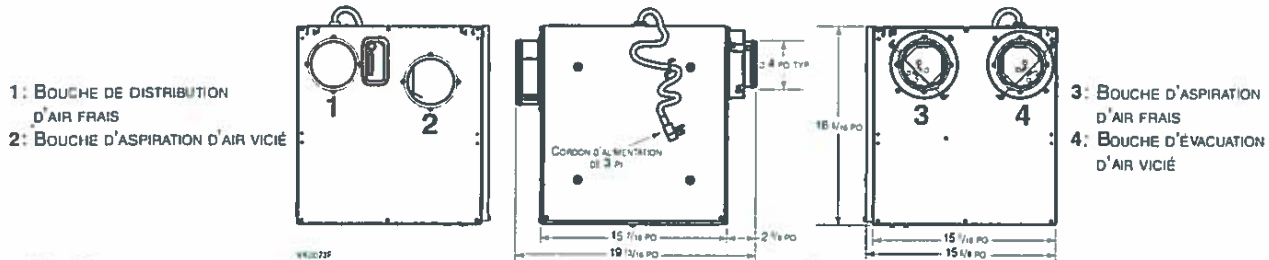
Garantie: À vie limitée

### Normes et exigences

- Conforme à la norme UL 1812 régissant l'installation de Ventilateurs Récupérateurs de Chaleur
- Conforme à la norme C22.2 n° 113 de la CSA applicable aux ventilateurs
- Conforme à la norme C444 de la CSA régissant l'installation de Ventilateurs Récupérateurs de Chaleur
- Les données techniques ont été obtenues suite à des résultats publiés après des essais relatifs aux normes C439 de la CSA
- Homologué ENERGY STAR® et certifié par le HVI



## DIMENSIONS : K10 HRV (BOUCHES LATÉRALES)



NOTE: TOUTES LES BOUCHES DE L'APPAREIL ONT ÉTÉ CONÇUES POUR ÊTRE RACCORDÉES À DES CONDUITS D'UN MINIMUM DE 4 PO DE DIAMÈTRE, MAIS SI NÉCESSAIRE, ELLES PEUVENT ÊTRE RACCORDÉES À DES CONDUITS DE FORMAT PLUS GRAND EN UTILISANT UNE TRANSITION ADÉQUATE (EX.: TRANSITION DE 4 PO À 5 PO DE DIAMÈTRE).

## RENDEMENT DE LA VENTILATION

PRESSION STATIQUE EXTERNE	PO D'EAU	DEBIT NET DE L'AIR FRAIS			DEBIT BRUT DE L'AIR					
		L/S	PI <sup>3</sup> /MIN	M <sup>3</sup> /H	AIR FRAIS			AIR VICIÉ		
PA					L/S	PI <sup>3</sup> /MIN	M <sup>3</sup> /H	L/S	PI <sup>3</sup> /MIN	M <sup>3</sup> /H
25	0,1	47	99	168	47	100	170	49	103	175
50	0,2	45	95	161	45	96	163	47	99	168
75	0,3	44	93	158	44	94	160	45	95	161
100	0,4	42	90	153	43	91	155	43	92	156
125	0,5	40	84	143	40	85	144	41	87	148
150	0,6	37	78	133	37	79	134	39	83	141
175	0,7	35	74	126	35	74	126	37	78	133
200	0,8	33	69	117	33	70	119	35	74	126
225	0,9	30	63	107	30	64	108	33	70	119

## RENDEMENT ÉNERGÉTIQUE

TEMP. D'AIR FRAIS			DEBIT NET DE L'AIR		PUISANCE CONSOMMÉE	RENDEMENT DE RÉCUPÉRATION DE CHALEUR SENSIBLE	EFFICACITÉ DE CHALEUR SENSIBLE APPARENTE	RÉCUPÉRATION LATENTE/TRANSFERT D'HUMIDITÉ
			L/S	PCM				
°C	°F			M <sup>3</sup> /H	WATTS			
CHAUFFAGE								
0	32	22	47	80	39	66	75	3
0	32	30	64	109	55	63	72	1
-25	-13	23	48	82	48	60	78	4
-25	-13	30	64	109	62	55	70	5

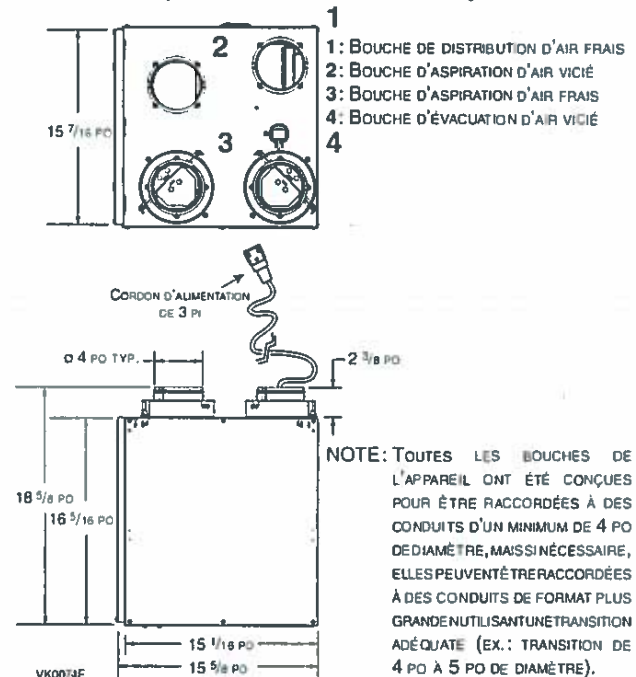
NOTE: Toutes les spécifications sont sujettes à changement sans préavis.

## SPÉCIFICATIONS

- Modèle: K10 HRV
- N° de produit bouches sur le dessus: 44500
- N° de produit bouches latérales: 44502
- Poids total assemblé (incluant le noyau de polypropylène): 30 lb (13,6 kg)
- Bouches rondes de 4 po
- Filtres de noyau: 2 filtres en mousse, lavables  
9,2 po x 5,75 po x 0,38 po  
(23,4 cm x 16,6 cm x 1 cm)  
30 ppi
- Boîtier: acier prépeint
- Isolant: polystyrène expansé
- Drain: raccord de 1/2 po (1,2 cm)  
avec 10 pi (3 m) de boyau en PVC
- Installation: chaînes de suspension et ressorts ou support mural en option
- Moteur du ventilateur (distribution et aspiration): 1 moteur
- Type de protection: thermique
- Classe d'isolant: B
- Commande de vitesse sur l'appareil:
  - Basse vitesse et haute vitesse
  - Autres modes offerts avec les commandes optionnelles
- Noyau de récupération de chaleur:
  - Surface utile: 42,3 pi<sup>2</sup> (3,9 m<sup>2</sup>)
  - Type: courants croisés
  - Matériau: polypropylène
- Caractéristiques électriques:
 

Volts	Fréquence	Ampère	Watts
120	60 Hz	0,6	72

## K10 HRV (BOUCHES SUR LE DESSUS)



Projet:	REMARQUES
Lieu:	
Numéro de produit:	
Quantité:	
Soumis par: _____ Date: _____	

VENMAR  
AVS

Groupe de produits résidentiels, 550, boul. Lemire, Drummondville, Qc, Canada J2C 7W9 - Tél.: 1 800 567-3855 Téléc.: 1 800 567-1715

100%  
HVI  
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K10HRVd170126F

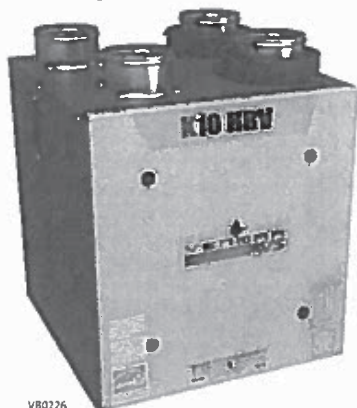


### Venmar K10 HRV

Part no. 44500 (TOP PORTS)

Part no. 44502 (SIDE PORTS)

47 to 90 CFM (0.4 in. w.g.)



VB0226

### A CUBE WITH AN ATTITUDE

The K10 HRV is delivering the highest airflow from the K Series, allowing to cover ventilation needs of larger applications while being as easy to install as the other models taking part of the same series. Indeed, with its compact size and 4-inch vertical or horizontal ports, it can be installed in small spaces such as a closet or mechanical room above a hot water tank.

The K10 HRV has just one blower and is therefore quieter than any other similar HRV on the market.

- At just 30 lb. (13.6 kg), it can be installed without opening the unit
- Features pressure taps, balancing dampers, integrated hooks and port straps to simplify installation
- Removable terminal block for quicker wall control connections
- ENERGY STAR® qualified

### REPAIRS AND MAINTENANCE

All parts of the K10 HRV that could need maintenance can be removed in less than five minutes, allowing direct access for easy repairs. The PSC motor is permanently lubricated.

### WARRANTY

The K10 HRV is protected by a 5-year warranty on parts only. The heat recovery core is covered by a limited lifetime warranty, with the original proof of purchase.

Available at:

## HEAT RECOVERY VENTILATOR

### Controls

- This unit is very simple to operate. Once it is installed, press on its push button, located on the unit top left side, to select high speed, low speed or to stop it (the blower is off but will turn on in response to a wall control signal). The LED (located under the push button) will then show which mode the unit is in.
- For more convenience, this unit can also be controlled by an optional main control. For a complete list of optional main and auxiliary controls available, refer to the **Wall Control Compatibility Chart** on last pages of wall controls specification sheet, available at [www.venmar.ca](http://www.venmar.ca).
- For more details about controls, refer to the **Main and auxiliary wall controls** user guide, also available at [www.venmar.ca](http://www.venmar.ca).

### Options

- Complete line of registers and diffusers
- Electric duct heater
- Exclusive wall mounting bracket no. 19255

### Defrosting System

The K10 HRV uses a recirculation defrost method, which maintains balanced air pressure in the home. If there is a call for ventilation from an auxiliary wall control during the defrost cycle, the defrost is put "on hold" while air is exchanged, ensuring that no humid air is recirculated.

OUTSIDE TEMPERATURE		DEFROST CYCLE MIN./ OPERATING MIN.
°C	°F	
WARMER THAN +5	WARMER THAN 23	NO DEFROST
-5 TO -15	23 TO 5	5/30
-15 TO -27	5 TO -17	5/20
-27 AND LESS	-17 AND LESS	7/15

### Heat Recovery Core

Dimensions: 10" x 10" x 5.5" (25.4 cm x 25.4 cm x 14 cm)

Exchange surface: 42.3 ft.<sup>2</sup> (3.9 m<sup>2</sup>)

Weight: 4 lb. (1.8 kg)

Material: Polypropylene

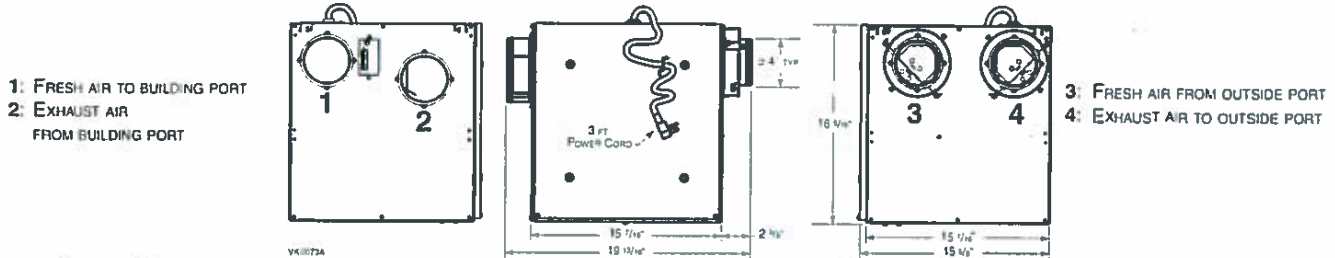
Type: Cross flow

Warranty: Limited lifetime

### Requirements and standards

- Complies with the UL 1812 requirements regulating the installation of Heat Recovery Ventilators
- Complies with the CSA C22.2 no. 113 Standard applicable to ventilators
- Complies with CSA C444 requirements regulating the installation of Heat Recovery Ventilators
- Technical data was obtained from published results of tests relating to CSA C439 Standards
- HVI certified and ENERGY STAR® qualified

## DIMENSIONS: K10 HRV (SIDE PORTS)



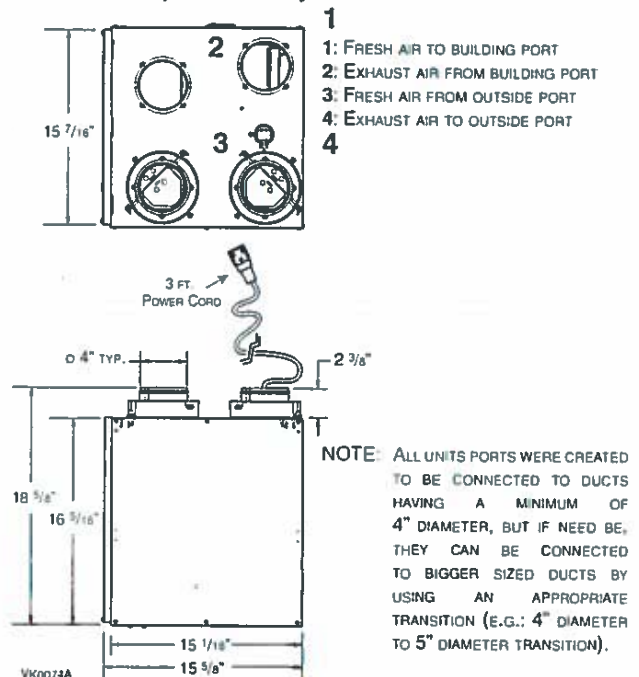
## VENTILATION PERFORMANCE

EXTERNAL STATIC PRESSURE		NET SUPPLY AIR FLOW			GROSS AIR FLOW					
					SUPPLY			EXHAUST		
PA	IN. W.G.	L/S	CFM	M <sup>3</sup> /H	L/S	CFM	M <sup>3</sup> /H	L/S	CFM	M <sup>3</sup> /H
25	0.1	47	99	168	47	100	170	49	103	175
50	0.2	45	95	161	45	96	163	47	99	168
75	0.3	44	93	158	44	94	160	45	95	161
100	0.4	42	90	153	43	91	155	43	92	156
125	0.5	40	84	143	40	85	144	41	87	148
150	0.6	37	78	133	37	79	134	39	83	141
175	0.7	35	74	126	35	74	126	37	78	133
200	0.8	33	69	117	33	70	119	35	74	126
225	0.9	30	63	107	30	64	108	33	70	119

## ENERGY PERFORMANCE

SUPPLY TEMPERATURE		NET AIR FLOW			POWER CONSUMED	SENSIBLE RECOVERY	APPARENT SENSIBLE	LATENT RECOVERY/
°C	°F	L/S	CFM	M <sup>3</sup> /H	WATTS	EFFICIENCY	EFFECTIVENESS	MOISTURE TRANSFER
HEATING								
0	32	22	47	80	39	66	75	3
0	32	30	64	109	55	63	72	1
-25	-13	23	48	82	48	60	78	4
-25	-13	30	64	109	62	55	70	5

## K10 HRV (TOP PORTS)



NOTE: All specifications are subject to change without notice.

## SPECIFICATIONS

- Model: K10 HRV
- Part Number Top Ports: 44500
- Part Number Side Ports: 44502
- Total Assembled Weight (including polypropylene core): 30 lb. (13.6 kg)
- Round 4" ports
- Drain: 1/2" (1.2 cm) fitting with 10 ft. (3 m) PVC drain hose
- Core Filters: 2 washable foam filters, 30 ppi 9.2" x 5.75" x 0.38" (23.4 cm x 16.6 cm x 1 cm)
- Housing: Pre-painted steel
- Insulation: Expanded polystyrene
- Mounting: Suspension by chains and spring or optional wall bracket
- Supply and Exhaust Blower Motor: 1 motor
  - Protection type: Thermally protected
  - Insulation class: B
- Speed Control on Unit:
  - Low speed and high speed
  - Other modes available with optional wall controls
- Heat Recovery Core:
  - Heat Exchange Surface Area: 42.3 ft.<sup>2</sup> (3.9 m<sup>2</sup>)
  - Type: Crossflow
  - Material: Polypropylene
- Unit Electrical Characteristics:
 

Volts	Frequency	Ampere	Watts
120	60 Hz	0.6	72

Project:	REMARKS
Location:	
Part no.:	
Qty.:	
Submitted by:	
Date:	



Residential Products Group, 550 Lemire Blvd., Drummondville, Qc, Canada J2C 7W9 • Tel: 1-800-567-3855 Fax: 1-800-567-1715

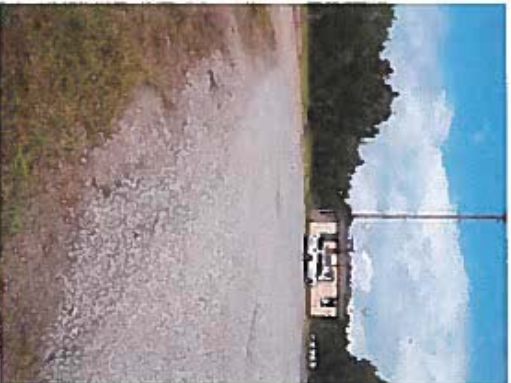


www.venmar.ca

K10HRVd160829

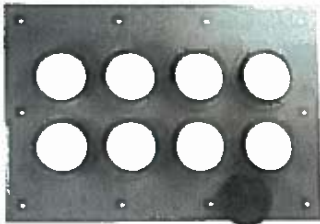


LÉVIS (2017)





# 204673-8



8 Port Entrance Panel, 2 x 4

## Product Classification

Product Type Entrance panel

## Dimensions

Height 444.50 mm | 17.50 in  
Width 647.70 mm | 25.50 in

## General Specifications

Number of Ports 8  
Panel Type Multiple  
Color Gray  
Entry Panel Port Size 101.6 mm | 4.0 in  
Includes Entry cap | Hardware | Port  
Material Type Aluminum  
Ordering Note CommScope® non-standard product  
Package Quantity 1

## Mechanical Specifications

Weather Resistance Test Method 04AS00-03.9.0 | IEC 60529:2001, IP66

## Packed Dimensions

Height 668.0 mm | 26.3 in  
Length 50.8 mm | 2.0 in  
Shipping Weight 2.50 kg | 5.51 lb  
Width 460.0 mm | 18.1 in

## Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
China RoHS SJ/T 11364-2014	Below Maximum Concentration Value (MCV)



# 204673-8

---



## Included Products

CAP-4 — Snap-in Entry Port Cap, 4 in



# CAP-4

---



Snap-in Entry Port Cap, 4 in

## Product Classification

**Product Type** Port cap

## General Specifications

**Panel Type** Multiple  
**Color** Black  
**Entry Panel Port Size** 101.6 mm | 4.0 in  
**Includes** Entry cap  
**Material Type** Engineered plastic  
**Ordering Note** CommScope® non-standard product  
**Package Quantity** 1

## Packed Dimensions

**Height** 127.0 mm | 5.0 in  
**Length** 248.9 mm | 9.8 in  
**Shipping Weight** 0.02 kg | 0.04 lb  
**Width** 127.0 mm | 5.0 in

## Regulatory Compliance/Certifications

**Agency** **Classification**  
ISO 9001:2015 Designed, manufactured and/or distributed under this quality management system





# FA-102997-HC3



HELIAX® FiberFeed®, 24-54 mm (0.945-2.126 in) cable entry seal, entry panel port size 4 in

## Product Classification

Brand	FiberFeed®   HELIAX®
Product Type	Cable entry seal

## Dimensions

Height	115.00 mm   4.53 in
Width	115.00 mm   4.53 in

## General Specifications

Cable Type	Hybrid fiber
Cables per Cushion	1
Color	Black   Blue
Includes	Cushion   Hardware
Package Quantity	1

## Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system





1 Port Entrance Panel 1 x 1



Product Classification

Product Type Entrance panel

Dimensions

Height 177.80 mm | 7.00 in  
Width 177.80 mm | 7.00 in

General Specifications

Number of Ports 1  
Panel Type Single  
Color Gray  
Entry Panel Port Size 101.6 mm | 4.0 in  
Includes Entry cap | Hardware | Port  
Material Type Aluminum  
Ordering Note CommScope® non-standard product  
Package Quantity 1

Mechanical Specifications

Weather Resistance Test Method 04AS00-03.9.0 | IEC 60529:2001, IP66

Packed Dimensions

Height 177.8 mm | 7.0 in  
Length 40.6 mm | 1.6 in  
Shipping Weight 0.28 kg | 0.62 lb  
Width 177.8 mm | 7.0 in

Regulatory Compliance/Certifications

Agency Classification  
ISO 9001:2015 Designed, manufactured and/or distributed under this quality management system

# 204673-1

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## Included Products

CAP-4 — Snap-in Entry Port Cap, 4 in

# FA-102993-HC3



HELIAX® FiberFeed®, 11-29 mm (0.433-1.142 in) cable entry seal, entry panel port size 4 in

## Product Classification

**Brand** FiberFeed® | HELIAX®  
**Product Type** Cable entry seal

## Dimensions

**Height** 115.00 mm | 4.53 in  
**Width** 115.00 mm | 4.53 in

## General Specifications

**Cable Type** Hybrid fiber  
**Cables per Cushion** 4  
**Color** Black | Blue  
**Includes** Cushion | Hardware  
**Package Quantity** 1

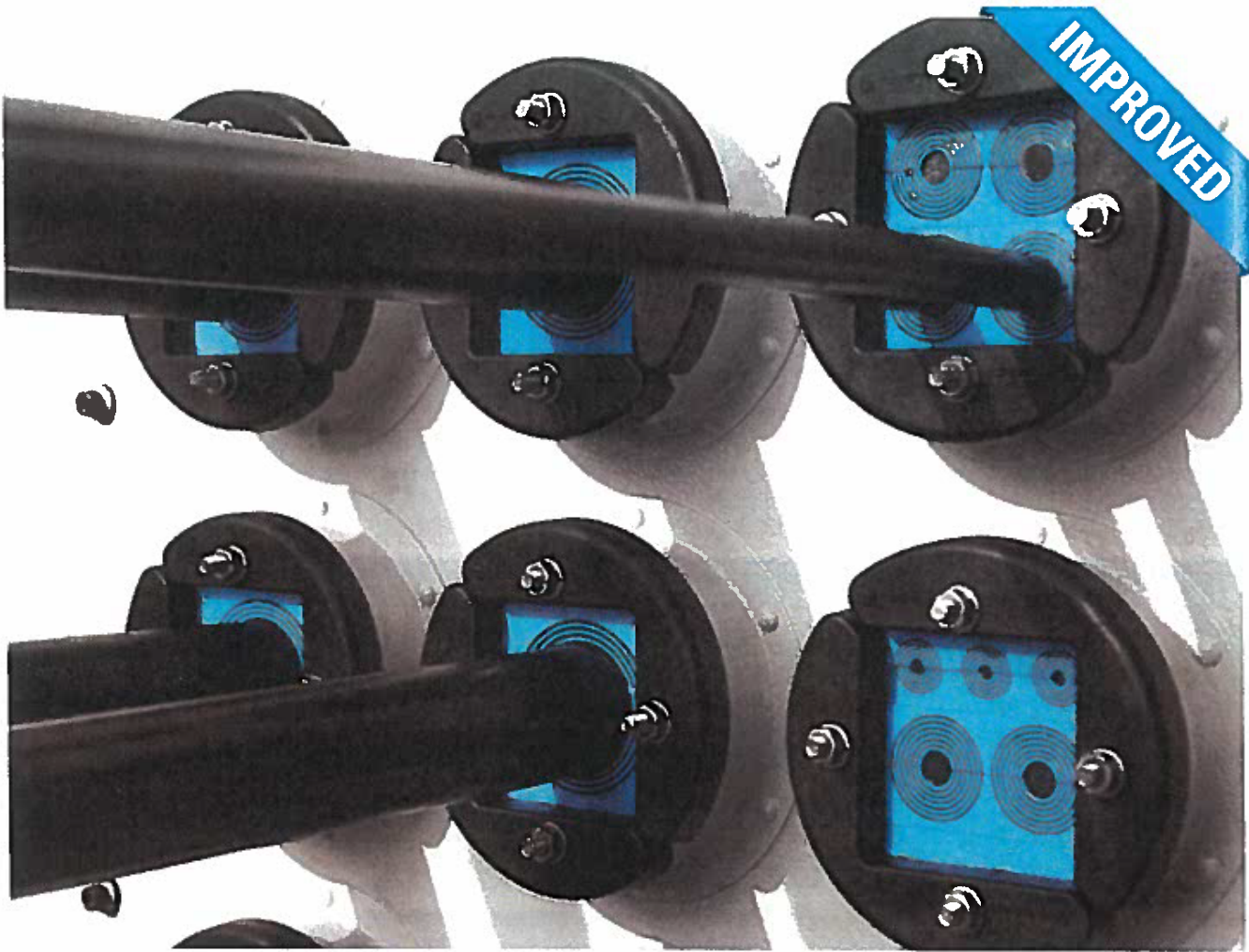
## Regulatory Compliance/Certifications

**Agency** **Classification**  
ISO 9001:2015 Designed, manufactured and/or distributed under this quality management system









## Roxtec CRL

CABLE ENTRY PORT SEAL – DESIGNED FOR SHELTERS,  
TELECOM CABINETS AND CONDUIT

**We Seal Your World™**

# The flexible cable entry port seal



The new Roxtec CRL replaces traditional black boots. It is your all-in-one cable sealing solution. The upgraded version of the seal offers superior weather protection, job-site flexibility and easy retrofit ability. You will also appreciate the new light-weight design and noncorroding components.

## Reduce inventory

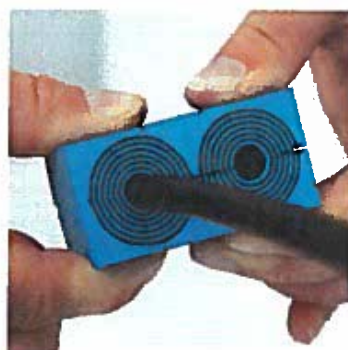
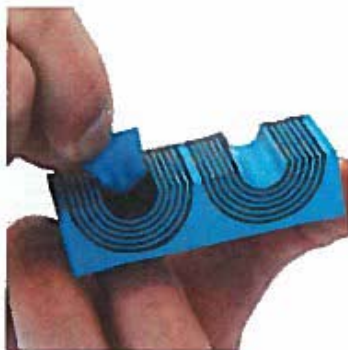
The four Roxtec CRL seals can replace as many as 76 different inserts that are used with the traditional black boot. With Roxtec CRL, you can run various sizes of coax (from 1/2" to 1 5/8"), fiber, signal, power or GPS cables through the same opening. Instead of storing countless inserts, you reduce inventory by 90 percent.

## Avoid surprise costs

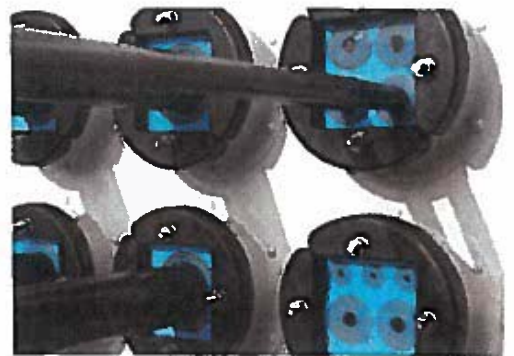
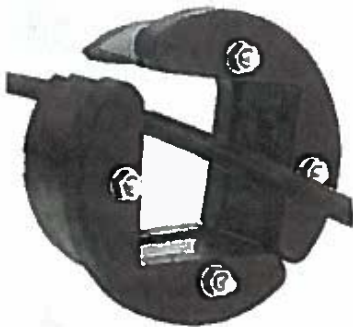
The Roxtec CRL is improved according to the needs within the fast-developing telecom industry. It is engineered for simplicity and reliability, and ready made kit packages ensure that installers always have the proper seal on site. You can make last minute changes in the field and easily add new cables over time – without adding costs.

## Multidiameter™ by Roxtec

The Roxtec solution, based on sealing modules with removable layers, simplifies design and installation work. Each module is adaptable to seal cables of different dimensions. The basic modules cover cable diameters from 1/5" to 2 1/8" (5.0-54.0 mm).



# Quick installation and easy retrofit



## Maximize uptime

The adaptability and the retrofit feature make the Roxtec CRL easy to install around connected cables in existing openings. With few components/part numbers and a minimum of transports and logistics, you finish the job on site, on time – without shutting the site down.

## Reduce installation time

The concept for the Roxtec CRL was developed by Roxtec as an alternative to the traditional boot. The aim was to give contractors the ability to seal odd-sized cables in the field and help them reduce installation time and save money. The Roxtec CRL exceeded all expectations.

## Increase cable capacity

The Roxtec CRL has a built-in spare capacity for 4G or LTE upgrades. It is crucial to be able to increase cable density when more and more operators share shelters. Unused modules allows for additional cables later on. You can combine 7/8" and 1/2" coax in the same port as LMR400. There is no need to purchase new seals for the additional cables.

## Ensure long-term protection

The upgraded Roxtec CRL 4" is made from resilient light-weight and non-corrosive materials. It will keep water, insects, dust and rodents from infiltrating shelters or cabinets. In contrast to traditional boots, it will sustain its sealing capacity, ensure operational reliability and protect both people and equipment for a long time.

## BENEFITS

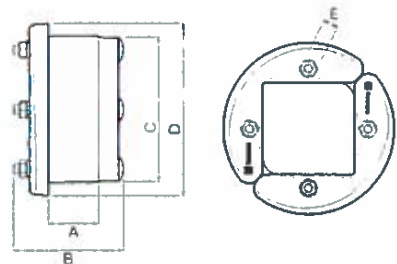
- Weather protection
- Dust-tight
- Rodent-proof
- Easy to install and re-install
- Easy to maintain and inspect

## Roxtec CRL kits available in 4" and 5"

Amount of cables	Kit	Module type				Art. No
		CM 11/0	CM 22w66	CM 33w66	CM 66	
1	Roxtec CRL 4"/1				1 pcs	CRL0004010012
1	Roxtec CRL 5"/1				1 pcs	CRL0005010012
4	Roxtec CRL 4"/4			2 pcs		CRL0004040012
4	Roxtec CRL 5"/4			2 pcs		CRL0005040012
5	Roxtec CRL 4"/5	1 pcs	1 pcs	1 pcs		CRL0004050012
5	Roxtec CRL 5"/5	1 pcs	1 pcs	1 pcs		CRL0005050012
9	Roxtec CRL 4"/9		3 pcs			CRL0004090012
9	Roxtec CRL 5"/9		3 pcs			CRL0005090012

Module	Cable outer diameter		Art. No.
	(in)	(mm)	
CM 11/0			C000000110000
CM 22w66	3x0+0.197-0.650	3x0+5-16.5	C000002266000
CM 33w66	2x0+0.433-1.142	2x0+11-29	C000003366000
CM 66	0+0.945-2.126	0+24-54	C000000066000

- All kits include Roxtec Assembly Gel and installation instructions.
- Roxtec CRL 4" and 5" are certified according to IEC60259 to IP54.



Seal	(in)	A (mm)	(in)	B (mm)	(in)	C (mm)	(in)	D (mm)	E
CRL 4"	1.299	33.0	2.898	73.6	3.801	96.5	4.542	115.4	SW10
CRL 5"	1.299	33.0	2.110	53.6	4.843	123.0	5.514	140.0	SW7/16"

### Material

Seal	Fittings	Fasteners	Frame body	Modules
CRL 4"	PA6 6 30 GF	Stainless steel	EPDM	Roxylon™
CRL 5"	Mild steel powder coated	Dacrolite treated	EPDM	Roxylon™



Roxtec CRL 4"/1  
Roxtec CRL 5"/1



Roxtec CRL 4"/4  
Roxtec CRL 5"/4



Roxtec CRL 4"/5  
Roxtec CRL 5"/5



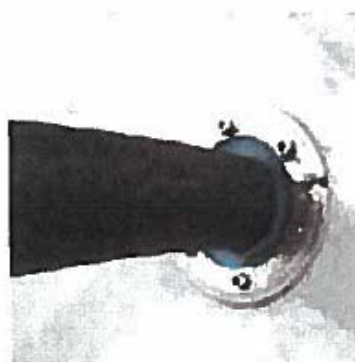
Roxtec CRL 4"/9  
Roxtec CRL 5"/9



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Box 540, 371 23 Karlskrona, SWEDEN  
PHONE +46 455 36 67 00, FAX +46 455 820 12  
EMAIL info@roxtec.com, www.roxtec.com



# Roxtec RS seal



**GB** The Roxtec RS is a round entry seal, consisting of two halves and an adaptable center with removable layers. Compression is integrated in the seal. Allows installation around an existing cable or pipe.

- Attachment by expansion in holes
- For one cable or pipe
- Sleeve accessory available

**CN** 洛克赛克RS型产品为圆形穿隔密封系统，由两个半圆形可调节多径零件组成。系统内集成有压紧装置，可安装在现有电缆和管道周围。

- 通过洞内膨胀安装
- 用于单根电缆或管道
- 管线套可供选购

**DE** Der Roxtec RS ist ein runder Stopfen, bestehend aus zwei Hälften mit einem, durch entfernbare Pellen, anpassbaren Kern. Die Kompressionseinheit ist in die Dichtung integriert. Ermöglicht die Installation um ein vorhandenes Kabel oder Rohr.

- Expansionsmontage
- Für ein Kabel oder Rohr
- Optionale Mantelrohre verfügbar

**ES** El RS de Roxtec es un sello de entrada redondo formado por dos mitades con un centro adaptable con capas desmontables para facilitar su instalación. La compresión está integrada en la unidad.

- Adhesión por dilatación en agujeros
- Para un cable o tubería
- Collarines de tuberías opcionales disponibles

**FR** La bague RS Roxtec est un joint circulaire fait de deux moitiés et un centre adaptable avec couches à peler pour un montage facile. La compression est intégrée à l'unité. Permet une installation autour d'un câble ou d'une tuyauterie existant.

- Fixation par expansion dans les trous
- Pour un câble ou une tuyauterie
- Manchons disponibles en option

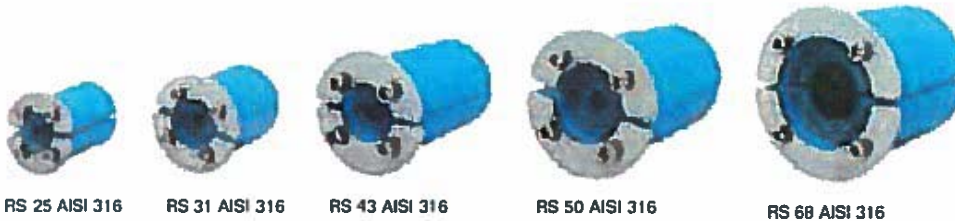
## RS seal, with core, acid proof stainless steel fittings

RS 密封件，耐酸不锈钢挡板，带中心塞

RS Stopfen, säurefeste, rostfreie Edelstahlbeschläge mit Kern

Sello RS, componentes en acero inoxidable a prueba de ácidos con núcleo central

Bague RS avec noyau central, acier inoxydable résistant aux acides



RS 25 AISI 316

RS 31 AISI 316

RS 43 AISI 316

RS 50 AISI 316

RS 68 AISI 316



RS 75 AISI 316

RS 100 AISI 316

RS 125 AISI 316

### Accessories



page 154 160

page 161

See also Installation guidelines on page 203.

RATINGS		Fire: A-Class, H-Class, EI 60/120, UL1479		Water pressure: 4 bar		Gas pressure: 2.5 bar	
密封件	适配电缆/管道的直径范围 (毫米) (英寸)		孔 径 Ø (毫米)   Ø (英寸)		重 量 (千克) (磅)		货号
Stopfen	Für Kabel/Rohr (mm) (in.)		Für Lochdurchmesser Ø (mm)   Ø (in.)		Gewicht (kg) (lb)		Art. Nr.
Sello	Para cable/tubería (mm) (pulgadas)		Para diámetro de hueco Ø (mm)   Ø (pulgadas)		Peso (kg) (libra)		Nº art.
Bague	Pour câble/tuyauterie (mm) (pouces)		Pour diamètre de trou Ø (mm)   Ø (pouces)		Poids (kg) (lb)		N° d'article
Seal	For cable/pipe (mm) (in)		For hole diameter Ø (mm) Ø (in)		Weight (kg) (lb)		Art. No.
RS 25 AISI 316	0+3.6-12	0+0.142-0.472	25-26	0.984 - 1.024	0.04	0.093	RS00100251023
RS 31 AISI 316	0+4-17	0+0.157-0.669	31-32	1.221 - 1.260	0.06	0.132	RS00100311023
RS 43 AISI 316	0+4-23	0+0.157-0.906	43-45	1.693 - 1.772	0.2	0.529	RS00100431023
RS 50 AISI 316	0+8-30	0+0.315-1.181	50-52	1.967 - 2.047	0.3	0.639	RS00100501023
RS 68 AISI 316	0+26-48	0+1.024-1.890	68-70	2.677 - 2.756	0.5	1.102	RS00100681023
RS 75 AISI 316	0+24-54	0+0.945-2.126	75-77	2.953 - 3.031	0.7	1.543	RS00100751023
RS 100 AISI 316	0+48-70	0+1.890-2.756	100-102	3.937 - 4.016	1.0	2.205	RS00101001023
RS 125 AISI 316	0+66-98	0+2.598-3.858	125-127	4.921 - 5.000	1.6	3.417	RS00101251023

## RS seal, without core, acid proof stainless steel fittings

RS 密封件, 耐酸不锈钢挡板, 不带中心塞

RS-Stopfen, säurefeste, rostfreie Edelstahlbeschläge ohne Kern

Sello RS, componentes en acero inoxidable a prueba de ácidos sin núcleo central

Bague RS sans noyau central, acier inoxydable résistant aux acides



RS 100 AISI 316 woc



RS 125 AISI 316 woc



RS 150 AISI 316 woc



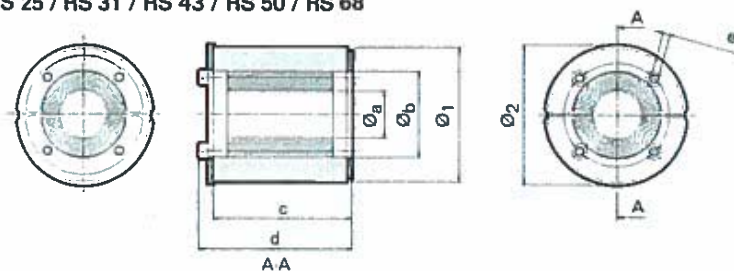
RS 225 AISI 316 woc

RATINGS		Fire: A Class, H-Class, EI 60/120, UL1479		Water pressure: 4 bar		Gas pressure: 2.5 bar		
		适配电缆/管道的直径范围 (毫米)   (英寸)		孔径 Ø (毫米)   Ø (英寸)		重量 (千克)   (磅)		货号
密封件		Für Kabel/Rohr (mm)   (in.)		Für Lochdurchmesser Ø (mm)   Ø (in.)		Gewicht (kg)   (lb)		Art. Nr.
Stopfen								
Sello		Para cable/tubería (mm)   (pulgadas)		Para diámetro de hueco Ø (mm)   Ø (pulgadas)		Peso (kg)   (libra)		Nº art.
Bague		Pour câble/tuyauterie (mm)   (pouces)		Pour diamètre de trou Ø (mm)   Ø (pouces)		Poids (kg)   (lb)		N° d'article
Seal		For cable/pipe (mm)   (in)		For hole diameter Ø (mm)   Ø (in)		Weight (kg)   (lb)		Art. No.
RS 100 AISI 316 woc	48-70	1.890-2.756	100-102	3.937-4.016	0.8	1.874	RS00001001023	
RS 125 AISI 316 woc	66-98	2.598-3.858	125-127	4.921-5.000	1.2	2.756	RS00001251023	
RS 150 AISI 316 woc	93-119	3.661-4.685	150-152	5.906-5.984	1.6	3.417	RS00001501023	
RS 175 AISI 316 woc	119-145	4.685-5.709	175-177	6.890-6.969	2.2	4.189	RS00175750021	
RS 200 AISI 316 woc	138-170	5.433-6.693	200-203	7.874-7.992	2.8	5.732	RS00200750021	
RS 225 AISI 316 woc	151-181	5.929-8.858	225-228	8.858-8.976	3.1	6.834	RS00002250021	
RS 250 AISI 316 woc	176-206	6.913-8.110	250-253	9.843-9.961	3.3	7.275	RS00002500021	
RS 300 AISI 316 woc	206-236	8.094-9.291	300-303	11.811-11.929	5.7	12.566	RS00003000021	
RS 350 AISI 316 woc	244-286	9.614-11.259	350-353	13.780-13.898	7.3	16.094	RS00003500021	
RS 400 AISI 316 woc	294-336	11.583-13.228	400-403	15.748-15.886	8.9	19.621	RS00004000021	
RS 450 AISI 316 woc	344-386	13.551-15.197	450-453	17.717-17.835	10.7	23.589	RS00004500021	
RS 500 AISI 316 woc	394-436	15.519-17.165	500-503	19.685-19.803	13.0	28.660	RS00005000021	
RS 550 AISI 316 woc	444-486	17.488-19.134	550-553	21.654-21.772	14.4	31.746	RS00005500021	
RS 600 AISI 316 woc	494-536	19.457-21.102	600-603	23.622-23.740	15.7	34.612	RS00006000021	
RS 644 AISI 316 woc	538-580	21.189-22.835	644-647	25.354-25.472	17.0	37.478	RS00006440021	

## RS seal, technical information

RS 密封件, 技术信息 » RS-Stopfen, technische Daten » Sello RS, información técnica »  
Bague RS, informations techniques

### RS 25 / RS 31 / RS 43 / RS 50 / RS 68



Note: All dimensions are nominal values

注意: 所有的尺寸都是参考值

Achtung: Alle angegebenen Maße sind Nominalwerte

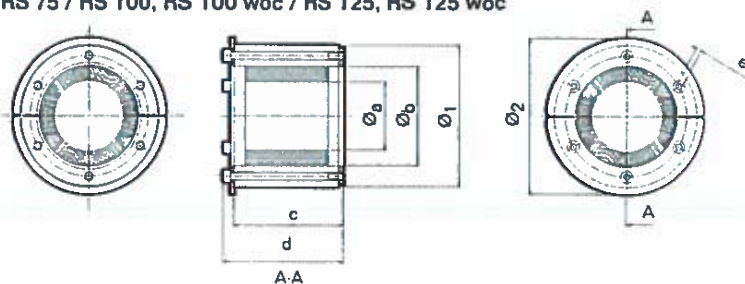
Nota: Todas las dimensiones son valores nominales

N.B.: toutes les dimensions sont nominales

	RS 25		RS 31		RS 43		RS 50		RS 68		RS 75	
Pos	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
Øa	3.6	0.142	4	0.157	4	0.157	8	0.315	26	1.024	24	0.945
Øb	12	0.472	17	0.669	23	0.906	30	1.181	48	1.890	54	2.126
Ø1	25	0.984	31	1.220	43	1.693	50	1.969	68	2.677	75	2.953
Ø2	32	1.260	37	1.457	53	2.087	60	2.362	78	3.071	85	3.346
c	40	1.575	40	1.575	78	3.071	78	3.071	78	3.071	78	3.071
d	44	1.732	44	1.732	85	3.346	85	3.346	85	3.346	85	3.346
e	*	*	*	*	**	**	**	**	**	**	***	***

\* SW2.5 mm (4x) / SW0.098" (4x) \*\* SW4 mm (4x) / SW0.157" (4x)

### RS 75 / RS 100, RS 100 woc / RS 125, RS 125 woc

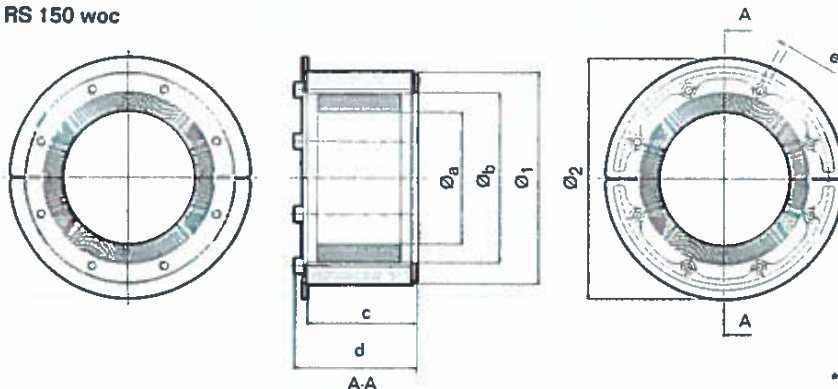


	RS 100 (woc)		RS 125 (woc)	
Pos	(mm)	(in)	(mm)	(in)
Øa	48	1.890	66	2.598
Øb	70	2.756	98	3.858
Ø1	100	3.937	125	4.921
Ø2	110	4.331	145	5.709
c	78	3.071	78	3.071
d	87	3.425	87	3.425
e	***	***	****	****

\*\*\* SW4 mm (6x) / SW0.157" (6x)

\*\*\*\* SW5 mm (6x) / SW0.197" (6x)

### RS 150 woc



	RS 150 woc	
Pos	(mm)	(in)
Øa	93	3.661
Øb	119	4.685
Ø1	150	5.906
Ø2	170	6.693
c	79	3.110
d	88	3.465
e	*****	*****

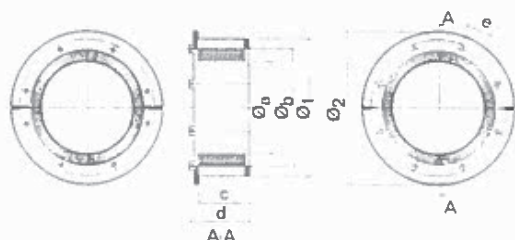
\*\*\*\*\* SW5 mm (8x) / SW0.197" (8x)



## RS seal, technical information

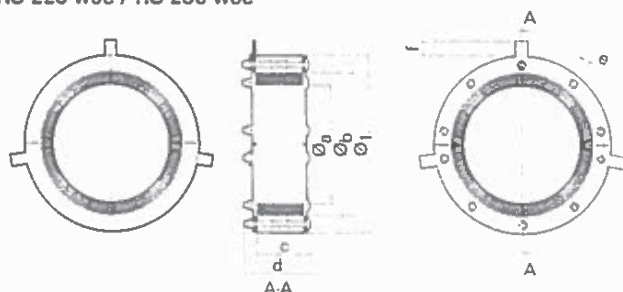
RS 密封件, 技术信息 » RS-Stopfen, technische Daten » Sello RS, información técnica »  
Bague RS, informations techniques

RS 175 woc / RS 200 woc



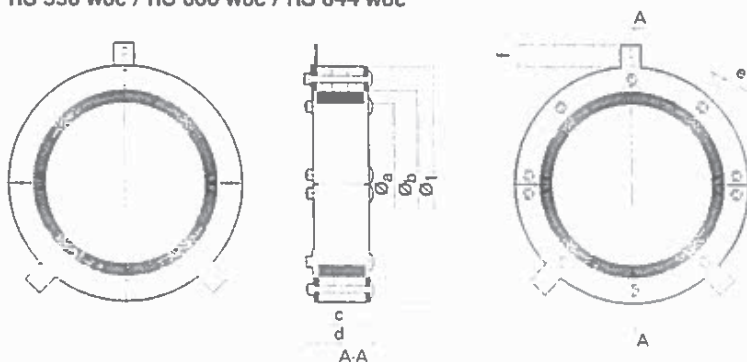
	RS 175 (woc)		RS 200 (woc)	
Pos	(mm)	(in)	(mm)	(in)
Ø <sub>a</sub>	119	4.685	138	5.433
Ø <sub>b</sub>	147	5.787	170	6.693
Ø <sub>1</sub>	175	6.890	200	7.874
Ø <sub>2</sub>	195	7.677	220	8.661
c	80	3.150	80	3.150
d	90	3.543	90	3.543
e	*	*	*	*

RS 225 woc / RS 250 woc



	RS 225 (woc)		RS 250 (woc)	
Pos	(mm)	(in)	(mm)	(in)
Ø <sub>a</sub>	151	5.929	176	6.913
Ø <sub>b</sub>	181	7.126	206	8.110
Ø <sub>1</sub>	225	8.858	250	9.843
c	68	2.672	69	2.696
d	84	3.302	85	3.326
f	19	0.743	19	0.743
e	**	**	**	**

RS 300 woc / RS 350 woc / RS 400 woc / RS 450 woc / RS 500 woc /  
RS 550 woc / RS 600 woc / RS 644 woc



\*\* SW 10 mm (10x) / SW 0.394" (10x)

Note: All dimensions are nominal values  
注意: 所有的尺寸都是参考值  
Achtung: Alle angegebenen Maße sind Nominalwerte  
Nota: Todas las dimensiones son valores nominales  
NB: toutes les dimensions sont nominales

	RS 300 (woc)		RS 350 (woc)		RS 400 (woc)		RS 450 (woc)		RS 500 (woc)		RS 550 (woc)		RS 600 (woc)		RS 644 (woc)	
Pos	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
c	71	2.775	71	2.775	71	2.775	71	2.775	74	2.889	74	2.889	74	2.889	74	2.889
d	85	3.342	85	3.342	86	3.357	96	3.755	96	3.755	96	3.755	96	3.755	96	3.755
Ø <sub>a</sub>	206	8.094	244	9.614	294	11.583	344	13.551	394	15.519	444	17.488	494	19.457	538	21.189
Ø <sub>b</sub>	236	9.291	286	11.259	336	13.228	386	15.197	436	17.165	486	19.134	536	21.102	580	22.835
Ø <sub>1</sub>	300	11.811	350	13.779	400	15.748	450	17.717	500	19.685	550	21.654	600	23.622	644	25.354
f	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102
e	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***

\*\*\* SW 13 mm (10x) / SW 0.512" (10x) \*\*\*\* SW 17 mm (10x) / SW 0.669" (10x)

# RS seal, aperture dimensions

GROUP **RM**

Installation

RS 密封件, 孔径  
RS-Stopfen, Öffnungsabmessungen  
Sello RS, dimensiones del hueco  
Bague RS, dimensions d'ouverture



CN	密封件	被推荐的孔径		最小孔深	
		Ø (毫米)	Ø (英寸)	(毫米)	(英寸)
DE	Stopfen	Empfohlene Öffnungsabmessungen		Mindestlochtiefe	
		Ø (mm)	Ø (in.)	(mm)	(in.)
ES	Sello	Dimensiones del hueco recomendadas		Profundidad mínima del hueco	
		Ø (mm)	Ø (pulgadas)	(mm)	(pulgadas)
FR	Bague	Dimensions d'ouverture recommandées		Profondeur minimum libre	
		Ø (mm)	Ø (pouces)	(mm)	(pouces)
GB	Seal	Recommended aperture dimensions		Minimum clearance depth	
		Ø (mm)	Ø (in.)	(mm)	(in.)
	RS 25	25-26	0.984-1.024	45	1.772
	RS 31, RS PPS/S 31	31-32	1.221-1.260	45	1.772
	RS 43, RS PPS/S 43	43-45	1.693-1.772	85	3.346
	RS 50, RS PPS/S 50	50-52	1.967-2.047	85	3.346
	RS 68, RS PPS/S 68	68-70	2.677-2.756	85	3.346
	RS 75, RS PPS/S 75	75-77	2.953-3.031	85	3.346
	RS 100, RS PPS/S 100	100-102	3.937-4.016	85	3.346
	RS 125, RS PPS/S 125	125-127	4.921-5.000	85	3.346
	RS 150, RS PPS/S 150	150-152	5.906-5.984	85	3.346
	RS 175	175-177	6.890-6.969	85	3.346
	RS 200	200-203	7.874-7.992	85	3.346
	RS 225	225-228	8.858-8.976	75	2.953
	RS 250	250-253	9.843-9.961	75	2.953
	RS 300	300-303	11.811-11.929	75	2.953
	RS 350	350-353	13.780-13.898	75	2.953
	RS 400	400-403	15.748-15.886	80	3.150
	RS 450	450-453	17.717-17.835	80	3.150
	RS 500	500-503	19.685-19.803	80	3.150
	RS 550	550-553	21.654-21.772	80	3.150
	RS 600	600-603	23.622-23.740	80	3.150
	RS 644	644-647	25.354-25.472	80	3.150

## RS seal, installation in different walls

RS 密封件，不同结构上的安装

RS-Stopfen, Installation in unterschiedliche Wände

Marco R, instalación en diferentes paredes

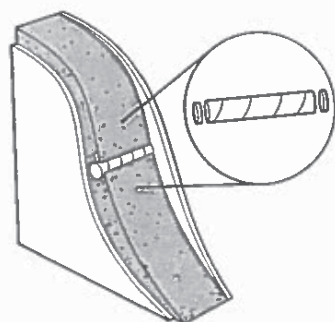
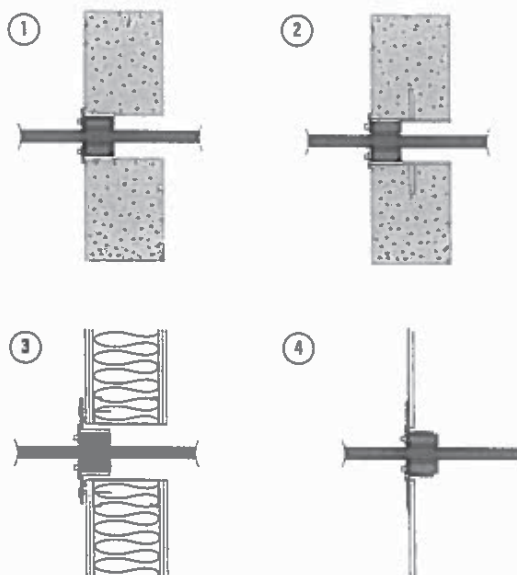
Bague RS, installations dans différentes constructions



### Installation examples

安装示例 / Installationsbeispiele / Ejemplos de instalaciones / Exemples de montage

- 1 In a core-drilled hole  
安装在一个中心钻孔中  
In einer Kernbohrung  
En un hueco perforado  
Carottage béton
- 2 In a casting collar  
安装在一个浇注导模中  
In einem einbetonierten Mantelrohr  
En un collarin de empotrado  
Manchon métallique en insert
- 3 In a bolted sleeve  
安装在一个螺栓连接的管套中  
In einem vorgeflanschten Mantelrohr  
En un manguito atornillado  
Manchon boulonné
- 4 In a welded sleeve  
安装在一个焊接的管套中  
In einem eingeschweißten Mantelrohr  
En un manguito soldado  
Manchon soudé



Paper casting mould  
纸质浇注导模  
Papp-Schalhülse  
Molde de empotrado de papel  
Tube de coffrage carton

For precise casting of holes for the RS seal, paper casting moulds are available. End covers for casting moulds are also available. Remove the paper casting mould from the wall before installing the RS seal. In existing wall constructions, a core-drilled hole of the right diameter is drilled for a perfect fit for the RS seal.

对于RS 密封件而言，使用纸质浇注导模可以获得精确的浇注孔。我们也可提供浇注导模的末盖。在安装RS 密封件之前，先从结构中取出纸质浇注导模。对于RS 密封件而言，为了达到完美的匹配，在现有墙体结构中，必须钻出一个正确孔径的中心钻孔。

Um während des Betongusses die richtigen Öffnungsabmessungen für die RS-Stopfen zu gewährleisten, sind Papp-Schalhülsen erhältlich. Sie können auch mit Endabdeckungen geliefert werden. Vor dem Installieren des RS-Stopfens, muss die Papp-Schalhülse aus der Wand entfernt werden. Bei bereits vorhandenen Wänden wird eine Kernbohrung mit dem richtigen Durchmesser vorgenommen, in die der RS-Stopfen genau passt.

Hay disponibles moldes de empotrado de papel para un empotrado preciso de los marcos RS en el hueco. También hay disponibles cubiertas finales de los moldes de empotrado. Extraiga el molde de empotrado de la pared antes de instalar el marco RS. En construcciones ya existentes, hay que perforar y vaciar un hueco del tamaño exacto para un ajuste perfecto del marco RS.

Pour des carottages précis, des tubes de coffrage en carton épais sont disponibles. Des bouchons pour les extrémités des tubes sont également disponibles. Retirer le tube de coffrage avant d'installer la bague RS. Dans des murs existants, assurez vous bien de réaliser un carottage correspondant au diamètre extérieur de la bague RS.



# Roxtec RS seal



**GB** The Roxtec RS is a round entry seal, consisting of two halves and an adaptable center with removable layers. Compression is integrated in the seal. Allows installation around an existing cable or pipe.

- Attachment by expansion in holes
- For one cable or pipe
- Sleeve accessory available

**CN** 洛克赛克RS型产品为圆形穿隔密封系统，由两个半圆形可调节多径零件组成。系统内集成有压紧装置。可安装在现有电缆和管道周围。

- 通过洞内膨胀安装
- 用于单根电缆或管道
- 管件套可供选购

**DE** Der Roxtec RS ist ein runder Stopfen, bestehend aus zwei Hälften mit einem, durch entfernbare Pellen, anpassbaren Kern. Die Kompressionseinheit ist in die Dichtung integriert. Ermöglicht die Installation um ein vorhandenes Kabel oder Rohr.

- Expansionsmontage
- Für ein Kabel oder Rohr
- Optionale Mantelrohre verfügbar

**ES** El RS de Roxtec es un sello de entrada redondo formado por dos mitades con un centro adaptable con capas desmontables para facilitar su instalación. La compresión está integrada en la unidad.

- Adhesión por dilatación en agujeros
- Para un cable o tubería
- Collarines de tuberías opcionales disponibles

**FR** La bague RS Roxtec est un joint circulaire fait de deux moitiés et un centre adaptable avec couches à peler pour un montage facile. La compression est intégrée à l'unité. Permet une installation autour d'un câble ou d'une tuyauterie existant.

- Fixation par expansion dans les trous
- Pour un câble ou une tuyauterie
- Manchons disponibles en option

## RS seal, with core, acid proof stainless steel fittings

RS 密封件, 耐酸不锈钢挡板, 带中心塞

RS-Stopfen, säurefeste, rostfreie Edelstahlbeschläge mit Kern

Sello RS, componentes en acero inoxidable a prueba de ácidos con núcleo central

Bague RS avec noyau central, acier inoxydable résistant aux acides



RS 25 AISI 316

RS 31 AISI 316

RS 43 AISI 316

RS 50 AISI 316

RS 68 AISI 316



RS 75 AISI 316

RS 100 AISI 316

RS 125 AISI 316

### Accessories



page 154-160

page 161

See also installation  
guidelines on page 203.

**RATINGS** Fire: A-Class, H-Class, EI 60/120, UL 1479 Water pressure: 4 bar Gas pressure: 2.5 bar

	密封件	适配电缆/管道的直径范围 (毫米)   (英寸)		孔径 Ø (毫米)   Ø (英寸)		重量 (千克)   (磅)		货号
		Für Kabel/Rohr (mm)   (in.)		Für Lochdurchmesser Ø (mm)   Ø (in.)		Gewicht (kg)   (lb)		
CN	Stopfen	Para cable/tubería (mm)   (pulgadas)		Para diámetro de hueco Ø (mm)   Ø (pulgadas)		Peso (kg)   (libra)		Art. Nr.
DE	Stopfen	Pour câble/tuyauterie (mm)   (pouces)		Pour diamètre de trou Ø (mm)   Ø (pouces)		Poids (kg)   (lb)		N° art.
ES	Sello							N° d'article
FR	Bague							
GB	Seal	For cable/pipe (mm)   (in.)		For hole diameter Ø (mm)   Ø (in.)		Weight (kg)   (lb)		Art. No.
	RS 25 AISI 316	0+3.6-12	0+0.142-0.472	25-26	0.984 - 1.024	0.04	0.093	RS00100251023
	RS 31 AISI 316	0+4-17	0+0.157-0.669	31-32	1.221 - 1.260	0.06	0.132	RS00100311023
	RS 43 AISI 316	0+4-23	0+0.157-0.906	43-45	1.693 - 1.772	0.2	0.529	RS00100431023
	RS 50 AISI 316	0+8-30	0+0.315-1.181	50-52	1.967 - 2.047	0.3	0.639	RS00100501023
	RS 68 AISI 316	0+26-48	0+1.024-1.890	68-70	2.677 - 2.756	0.5	1.102	RS00100681023
	RS 75 AISI 316	0+24-54	0+0.945-2.126	75-77	2.953 - 3.031	0.7	1.543	RS00100751023
	RS 100 AISI 316	0+48-70	0+1.890-2.756	100-102	3.937 - 4.016	1.0	2.205	RS00101001023
	RS 125 AISI 316	0+66-98	0+2.598-3.858	125-127	4.921 - 5.000	1.6	3.417	RS00101251023



## RS seal, without core, acid proof stainless steel fittings

RS 密封件, 耐酸不锈钢挡板, 不带中心塞

RS-Stopfen, säurefeste, rostfreie Edelstahlbeschlüge ohne Kern

Sello RS, componentes en acero inoxidable a prueba de ácidos sin núcleo central

Bague RS sans noyau central, acier inoxydable résistant aux acides



RS 100 AISI 316 woc



RS 125 AISI 316 woc



RS 150 AISI 316 woc



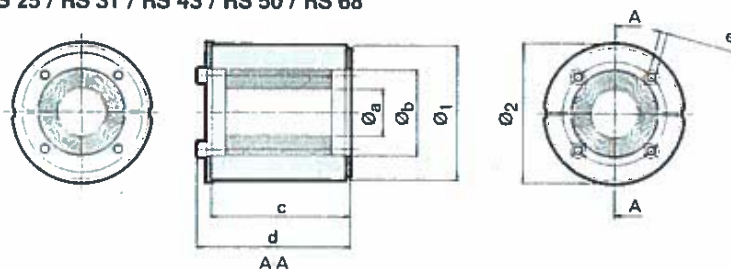
RS 225 AISI 316 woc

RATINGS		Fire: A-Class, H-Class, EI 60/120, UL1479		Water pressure: 4 bar		Gas pressure: 2.5 bar		
密封件		适配电缆/管道的直径范围 (毫米) (英寸)		孔径 Ø (毫米) Ø (英寸)		重量 (千克) (磅)		货号
Stopfen		Für Kabel/Rohr (mm) (in.)		Für Lochdurchmesser Ø (mm) Ø (in.)		Gewicht (kg) (lb)		Art.-Nr.
Sello		Para cable/tubería (mm) (pulgadas)		Para diámetro de hueco Ø (mm) Ø (pulgadas)		Peso (kg) (libra)		Nº art.
Bague		Pour câble/tuyauterie (mm) (pouces)		Pour diamètre de trou Ø (mm) Ø (pouces)		Poids (kg) (lb)		N° d'article
Seal	For cable/pipe (mm) (in.)		For hole diameter Ø (mm) Ø (in.)		Weight (kg) (lb)		Art. No.	
RS 100 AISI 316 woc	48-70	1.890-2.756	100-102	3.937-4.016	0.8	1.874	RS00001001023	
RS 125 AISI 316 woc	66-98	2.598-3.858	125-127	4.921-5.000	1.2	2.756	RS00001251023	
RS 150 AISI 316 woc	93-119	3.661-4.685	150-152	5.906-5.984	1.6	3.417	RS00001501023	
RS 175 AISI 316 woc	119-145	4.685-5.709	175-177	6.890-6.969	2.2	4.189	RS00175750021	
RS 200 AISI 316 woc	138-170	5.433-6.693	200-203	7.874-7.992	2.8	5.732	RS00200750021	
RS 225 AISI 316 woc	151-181	5.929-8.858	225-228	8.858-8.976	3.1	6.834	RS00002250021	
RS 250 AISI 316 woc	176-206	6.913-8.110	250-253	9.843-9.961	3.3	7.275	RS00002500021	
RS 300 AISI 316 woc	206-236	8.094-9.291	300-303	11.811-11.929	5.7	12.566	RS00003000021	
RS 350 AISI 316 woc	244-286	9.614-11.259	350-353	13.780-13.898	7.3	16.094	RS00003500021	
RS 400 AISI 316 woc	294-336	11.583-13.228	400-403	15.748-15.886	8.9	19.621	RS00004000021	
RS 450 AISI 316 woc	344-386	13.551-15.197	450-453	17.717-17.835	10.7	23.589	RS00004500021	
RS 500 AISI 316 woc	394-436	15.519-17.165	500-503	19.685-19.803	13.0	28.660	RS00005000021	
RS 550 AISI 316 woc	444-486	17.488-19.134	550-553	21.654-21.772	14.4	31.746	RS00005500021	
RS 600 AISI 316 woc	494-536	19.457-21.102	600-603	23.622-23.740	15.7	34.612	RS00006000021	
RS 644 AISI 316 woc	538-580	21.189-22.835	644-647	25.354-25.472	17.0	37.478	RS00006440021	

## RS seal, technical information

RS 密封件, 技术信息 | RS-Stopfen, technische Daten | Sello RS, información técnica |  
Bagu® RS, informations techniques

### RS 25 / RS 31 / RS 43 / RS 50 / RS 68



Note: All dimensions are nominal values

注意: 所有的尺寸都是参考值

Achtung: Alle angegebenen Maße sind Nominalwerte

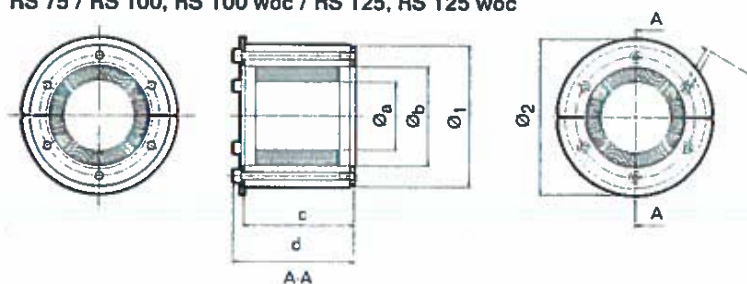
Nota: Todas las dimensiones son valores nominales

N.B.: toutes les dimensions sont nominales

	RS 25		RS 31		RS 43		RS 50		RS 68		RS 75	
Pos	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
Øa	3.6	0.142	4	0.157	4	0.157	8	0.315	26	1.024	24	0.945
Øb	12	0.472	17	0.669	23	0.906	30	1.181	48	1.890	54	2.126
Ø1	25	0.984	31	1.220	43	1.693	50	1.969	68	2.677	75	2.953
Ø2	32	1.260	37	1.457	53	2.087	60	2.362	78	3.071	85	3.346
c	40	1.575	40	1.575	78	3.071	78	3.071	78	3.071	78	3.071
d	44	1.732	44	1.732	85	3.346	85	3.346	85	3.346	85	3.346
e	*	*	*	*	**	**	**	**	**	**	***	***

\* SW2.5 mm (4x) / SW0.098" (4x) \*\* SW4 mm (4x) / SW0.157" (4x)

### RS 75 / RS 100, RS 100 woc / RS 125, RS 125 woc

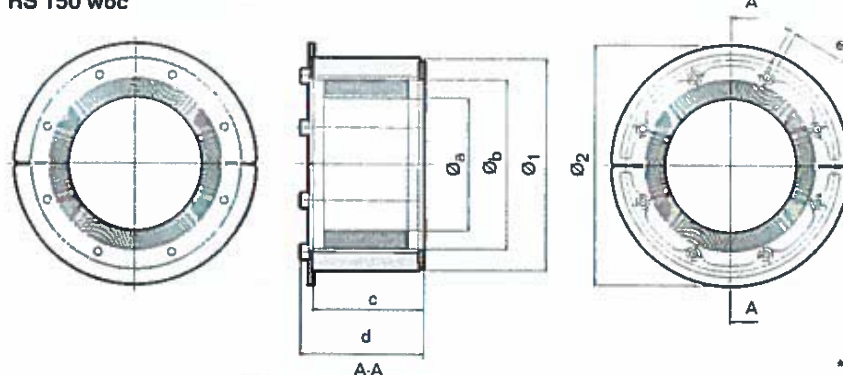


	RS 100 (woc)		RS 125 (woc)	
Pos	(mm)	(in)	(mm)	(in)
Øa	48	1.890	66	2.598
Øb	70	2.756	98	3.858
Ø1	100	3.937	125	4.921
Ø2	110	4.331	145	5.709
c	78	3.071	78	3.071
d	87	3.425	87	3.425
e	***	***	****	****

\*\*\* SW4 mm (6x) / SW0.157" (6x)

\*\*\*\* SW5 mm (6x) / SW0.197" (6x)

### RS 150 woc



	RS 150 woc	
Pos	(mm)	(in)
Øa	93	3.661
Øb	119	4.685
Ø1	150	5.906
Ø2	170	6.693
c	79	3.110
d	88	3.465
e	*****	*****

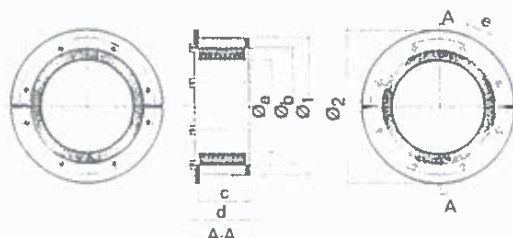
\*\*\*\*\* SW5 mm (8x) / SW0.197" (8x)



## RS seal, technical information

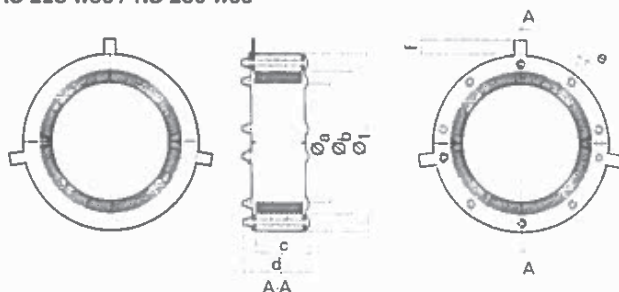
RS 密封件, 技术信息 | RS-Stopfen, technische Daten | Sello RS, información técnica |  
Bague RS, informations techniques

### RS 175 woc / RS 200 woc



	RS 175 (woc)		RS 200 (woc)	
Pos	(mm)	(in)	(mm)	(in)
Ø <sub>a</sub>	119	4.685	138	5.433
Ø <sub>b</sub>	147	5.787	170	6.693
Ø <sub>1</sub>	175	6.890	200	7.874
Ø <sub>2</sub>	195	7.677	220	8.661
c	80	3.150	80	3.150
d	90	3.543	90	3.543
e	*	*	*	*

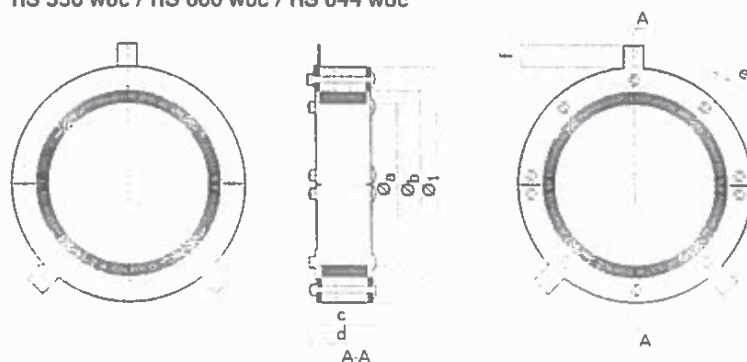
### RS 225 woc / RS 250 woc



\* SW 5 mm (8x) / SW 0.197" (8x)

	RS 225 (woc)		RS 250 (woc)	
Pos	(mm)	(in)	(mm)	(in)
Ø <sub>a</sub>	151	5.929	176	6.913
Ø <sub>b</sub>	181	7.126	206	8.110
Ø <sub>1</sub>	225	8.858	250	9.843
c	68	2.672	69	2.696
d	84	3.302	85	3.326
f	19	0.743	19	0.743
e	**	**	**	**

### RS 300 woc / RS 350 woc / RS 400 woc / RS 450 woc / RS 500 woc / RS 550 woc / RS 600 woc / RS 644 woc



\*\* SW 10 mm (10x) / SW 0.394" (10x)

Note: All dimensions are nominal values  
注意: 所有的尺寸都是参考值  
Achtung: Alle angegebenen Maße sind Nominalwerte  
Nota: Todas las dimensiones son valores nominales  
NB: toutes les dimensions sont nominales

	RS 300 (woc)		RS 350 (woc)		RS 400 (woc)		RS 450 (woc)		RS 500 (woc)		RS 550 (woc)		RS 600 (woc)		RS 644 (woc)	
Pos	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
c	71	2.775	71	2.775	71	2.775	71	2.775	74	2.889	74	2.889	74	2.889	74	2.889
d	85	3.342	85	3.342	86	3.357	96	3.755	96	3.755	96	3.755	96	3.755	96	3.755
Ø <sub>a</sub>	206	8.094	244	9.614	294	11.583	344	13.551	394	15.519	444	17.488	494	19.457	538	21.189
Ø <sub>b</sub>	236	9.291	286	11.259	336	13.228	386	15.197	436	17.165	486	19.134	536	21.102	580	22.835
Ø <sub>1</sub>	300	11.811	350	13.779	400	15.748	450	17.717	500	19.685	550	21.654	600	23.622	644	25.354
f	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102	28	1.102
e	***	***	***	***	***	***	****	****	****	****	****	****	****	****	****	****

\*\*\* SW 13 mm (10x) / SW 0.512" (10x) \*\*\*\* SW 17 mm (10x) / SW 0.669" (10x)

# RS seal, aperture dimensions

GROUP RM

Installation

RS 密封件, 孔径

RS-Stopfen, Öffnungsabmessungen

Sello RS, dimensiones del hueco

Bague RS, dimensions d'ouverture



CN	密封件	被推荐的孔径		最小孔深	
		Ø (毫米)	Ø (英寸)	(毫米)	(英寸)
DE	Stopfen	Empfohlene Öffnungsabmessungen		Mindestlochtiefe	
		Ø (mm)	Ø (in.)	(mm)	(in.)
ES	Sello	Dimensiones del hueco recomendadas		Profundidad mínima del hueco	
		Ø (mm)	Ø (pulgadas)	(mm)	(pulgadas)
FR	Bague	Dimensions d'ouverture recommandées		Profondeur minimum libre	
		Ø (mm)	Ø (pouces)	(mm)	(pouces)
GB	Seal	Recommended aperture dimensions		Minimum clearance depth	
		Ø (mm)	Ø (in)	(mm)	(in)
	RS 25	25-26	0.984-1.024	45	1.772
	RS 31, RS PPS/S 31	31-32	1.221-1.260	45	1.772
	RS 43, RS PPS/S 43	43-45	1.693-1.772	85	3.346
	RS 50, RS PPS/S 50	50-52	1.967-2.047	85	3.346
	RS 68, RS PPS/S 68	68-70	2.677-2.756	85	3.346
	RS 75, RS PPS/S 75	75-77	2.953-3.031	85	3.346
	RS 100, RS PPS/S 100	100-102	3.937-4.016	85	3.346
	RS 125, RS PPS/S 125	125-127	4.921-5.000	85	3.346
	RS 150, RS PPS/S 150	150-152	5.906-5.984	85	3.346
	RS 175	175-177	6.890-6.969	85	3.346
	RS 200	200-203	7.874-7.992	85	3.346
	RS 225	225-228	8.858-8.976	75	2.953
	RS 250	250-253	9.843-9.961	75	2.953
	RS 300	300-303	11.811-11.929	75	2.953
	RS 350	350-353	13.780-13.898	75	2.953
	RS 400	400-403	15.748-15.886	80	3.150
	RS 450	450-453	17.717-17.835	80	3.150
	RS 500	500-503	19.685-19.803	80	3.150
	RS 550	550-553	21.654-21.772	80	3.150
	RS 600	600-603	23.622-23.740	80	3.150
	RS 644	644-647	25.354-25.472	80	3.150

RS 密封件, 不同结构上的安装

RS-Stopfen, Installation in unterschiedliche Wände

Marco R, instalación en diferentes paredes

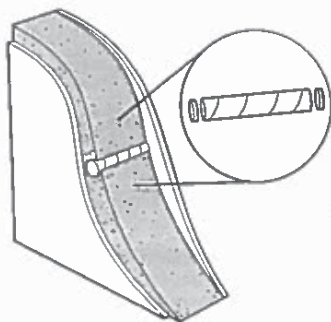
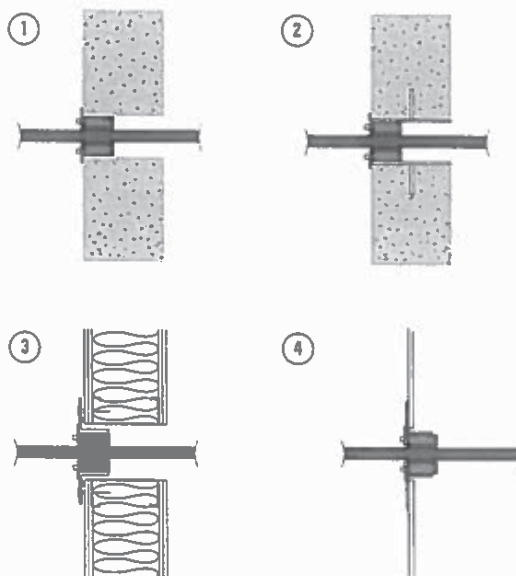
Bague RS, installations dans différentes constructions



### Installation examples

安装示例 / Installationsbeispiele / Ejemplos de instalaciones / Exemples de montage

- 1 In a core-drilled hole  
安装在一个中心钻孔中  
In einer Kernbohrung  
En un hueco perforado  
Carottage béton
- 2 In a casting collar  
安装在一个浇注导模中  
In einem einbetonierten Mantelrohr  
En un collarín de empotrado  
Manchon métallique en insert
- 3 In a bolted sleeve  
安装在一个螺栓连接的管套中  
In einem vorgeflanschten Mantelrohr  
En un manguito atomillado  
Manchon boulonné
- 4 In a welded sleeve  
安装在一个焊接的管套中  
In einem eingeschweißten Mantelrohr  
En un manguito soldado  
Manchon soudé



Paper casting mould  
纸质浇注导模  
Papp-Schalhülse  
Molde de empotrado de papel  
Tube de coffrage carton

For precise casting of holes for the RS seal, paper casting moulds are available. End covers for casting moulds are also available. Remove the paper casting mould from the wall before installing the RS seal. In existing wall constructions, a core-drilled hole of the right diameter is drilled for a perfect fit for the RS seal.

对于RS 密封件而言, 使用纸质浇注导模可以获得精确的浇注孔。我们也可提供浇注导模的末盖。在安装RS 密封件之前, 先从结构中取出纸质浇注导模。对于RS 密封件而言, 为了达到完美的匹配, 在现有墙体结构中, 必须钻出一个正确孔径的中心钻孔。

Um während des Betongusses die richtigen Öffnungsabmessungen für die RS Stopfen zu gewährleisten, sind Papp-Schalhülsen erhältlich. Sie können auch mit Endabdeckungen geliefert werden. Vor dem Installieren des RS Stopfens, muss die Papp-Schalhülse aus der Wand entfernt werden. Bei bereits vorhandenen Wänden wird eine Kernbohrung mit dem richtigen Durchmesser vorgenommen, in die der RS Stopfen genau passt.

Hay disponibles moldes de empotrado de papel para un empotrado preciso de los marcos RS en el hueco. También hay disponibles cubiertas finales de los moldes de empotrado. Extraiga el molde de empotrado de la pared antes de instalar el marco RS. En construcciones ya existentes, hay que perforar y vaciar un hueco del tamaño exacto para un ajuste perfecto del marco RS.

Pour des carottages précis, des tubes de coffrage en carton épais sont disponibles. Des bouchons pour les extrémités des tubes sont également disponibles. Retirez le tube de coffrage avant d'installer la bague RS. Dans des murs existants, assurez-vous bien de réaliser un carottage correspondant au diamètre extérieur de la bague RS.









## Série B..LD

## EEMAC / NEMA 1

### Caniveaux de filerie et accessoires

#### Utilisation :

Type 1 Boîtiers conçus pour la conduite de câbles à l'intérieur.

#### Construction :

- acier 16 Ga
- raccord fourni avec chaque longueur
- loquet de cadenassage rétractable
- peinture extérieure et intérieure polyester grise, à effet texturé poudre ANSI/ASA61

#### Sur demande :

- jauge renforcée pour passe fils dont la dimension excède 6" x 6"
- séparateurs de câbles installés en usine (spécifiez si les séparateurs sont en position verticale ou horizontale à l'intérieur des raccords)
- perforations et orifices, dimensions et finis spéciaux

#### Normes :

- certifié CSA 150359

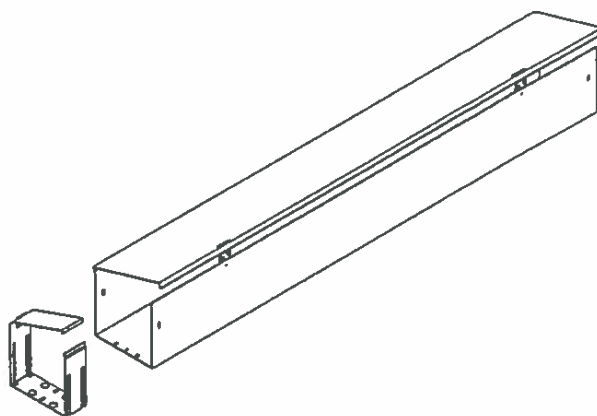


DIAGRAMME DE L'INTENSITÉ DE COURANT ADMISSIBLE DANS LES CONDUCTEURS

Dimension des fils	Dimension des fils		Nombre max des fils ayant un courant admissible identique					
	Types	Types	64mm x 64mm (2.5" x 2.5")		102mm x 102mm (4" x 4")		152mm x 152mm (6" x 6")	
	RW75 T, TW, TWH R90 RW75 (x-Link) RW90 (x-Link)		A	B	A	B	A	B
14	.0327	.0135	38	92	97	200	200	200
12	.0384	.0172	32	72	83	186	187	200
10	.0460	.0224	27	56	69	142	156	200
8	.0760	.0475	16	26	42	67	94	151
6	.1238	.0819	10	15	25	39	58	87
4	.1805	.1087	7	11	19	29	44	66
3	.1817	.1263	6	9	17	25	39	57
2	.2067	.1473	6	8	15	21	34	48
1	.2715	.2027	4	6	11	15	26	35
0	.3107	.2367	4	5	10	13	23	30
00	.3578	.2781	3	4	8	11	20	25
000	.4151	.3288	3	3	7	9	17	21
0000	.4840	.3904	2	3	6	8	14	18
250MCM	.5917	.4877	2	2	5	6	12	14
300MCM	.6837	.5581	1	2	4	5	10	12
350MCM	.7620	.6291	1	1	4	5	8	11
400MCM	.8385	.6969	1	1	3	4	8	10
500MCM	.9834	.8318	1	1	3	3	7	8
600MCM	1.1940	1.0281	1	1	2	3	6	7
700MCM	1.3355	1.1575	-	1	2	2	5	6
750MCM	1.4082	1.2252	-	1	2	2	5	5

#### DONNÉES TECHNIQUES

Description	# catalogue	Poids	# catalogue	Poids	# catalogue	Poids
	2.5" x 2.5"	lb	4" x 4"	lb	6" x 6"	lb
Section de caniveau de 12" B21LD	2		B41LD	4	B61LD	5
Section de caniveau de 24" B22LD	4		B42LD	7	B62LD	10
Section de caniveau de 60" B25LD	11		B45LD	18	B65LD	26
Section de caniveau de 96" B28LD	20		B48LD	33	B68LD	49

#### ACCESSOIRES

Coude 90°	B290E	1.25	B490E	2	B690E	4
Coude 45°	B245E	1.25	B445E	1.50	B645E	2.5
Coude 22.5°	B225E	1	B425E	1.5	B625E	2
Raccord en T	B2T	1.5	B4T	2.5	B6T	4
Raccord en croix	B2CF	2	B4CF	2.25	B6CF	4
Support (hor. et vert.)	B2H	0.25	B4H	0.5	B6H	0.75
Plaque de fermeture	B2CP	0.25	B4CP	0.5	B6CP	1
Adaptateur	B2AD	0.25	B4AD	0.75	B6AD	1
Raccord réducteur 4" à 2.5"	-	-	B42R	1.5	-	-
Raccord réducteur 6" à 4"	-	-	-	-	B64R	2
Raccord	B2J	0.25	B4J	0.5	B6J	0.75
Séparateur de 12"	B21B	0.5	B41B	1	B61B	1
Séparateur de 24"	B22B	1	B42B	2	B62B	3
Séparateur de 60"	B25B	3	B45B	5	B65B	7
Séparateur de 96"	B28B	5	B48B	9	B68B	14

\*Les séparateurs sont conçus pour installation au chantier



Produits BEL inc.

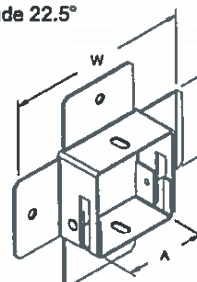
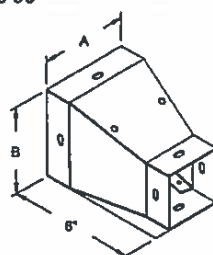
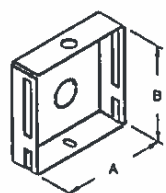
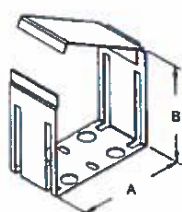
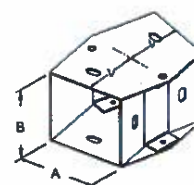
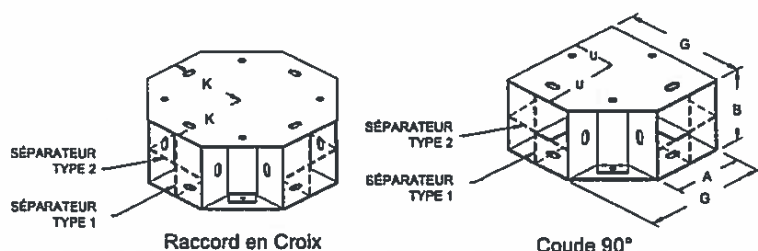
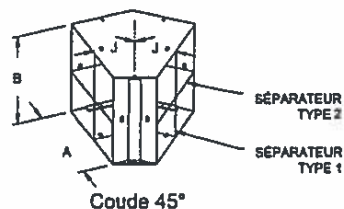
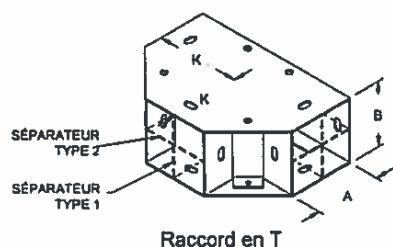
Les caractéristiques techniques peuvent être modifiées sans préavis. 10/2013



**Série B..LD**

**EEMAC / NEMA 1**

**Caniveaux de filerie et accessoires**

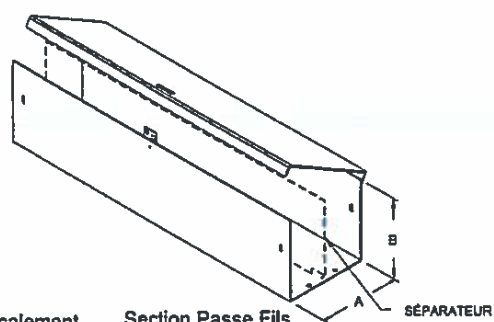
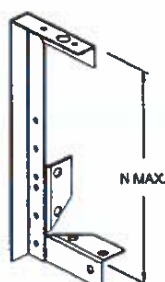
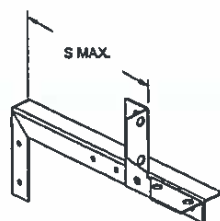


Raccord

Plaque de fermeture

Réducteur

Adaptateur



Support installé P horizontalement

Support installé P verticalement

Section Passe Fils

SÉPARATEUR

**DIMENSION DES CANIVEAUX**

A		B	G	J	K	N	S	U	V	W	X	Y
2.500	x	2.500	4.625	2.406	3.313	7.500	6.250	3.313	2.063	5.188	-	-
4.000	x	4.000	6.125	2.688	4.063	9.500	7.125	4.063	2.156	6.888	2.500	2.500
6.000	x	6.000	8.125	3.094	5.063	14.000	9.500	5.063	2.375	8.688	4.000	4.000



Produits BEL inc.

Les caractéristiques techniques peuvent être modifiées sans préavis. 10/2013





# SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, the Korean ISHA (Notice 2009-68), the Japanese Industrial Standard JIS Z 7250: 2000, Mexican NOM018-STPS 2000, SPRING Singapore, and the Global Harmonization Standard

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY UNDERTAKING

### IDENTIFICATION OF THE MIXTURE

TRADE/MATERIAL NAME:

RELEVANT USE of the SUBSTANCE:

USES ADVISED AGAINST:

SUPPLIER/MANUFACTURER'S NAME:

Address:

Business Phone:

Emergency Phone:

**SpecSeal® Ready® Sleeve Firestop Pathways**

Firestop Device

None

**Specified Technologies Inc.**

210 Evans Way,

Somerville, New Jersey 08876

(908) 526-8000 (8 00am to 5:00pm Eastern Standard Time)

U.S., Canada: 1-800-255-3924 (24 hrs)

International: +1-813-248-0585(collect-24 hrs)

EMAIL of Competent Person for Information on SDS:

[techserv@stifirestop.com](mailto:techserv@stifirestop.com)

NOTE: ALL United States Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards, Canadian WHMIS (Controlled Products Regulations), Mexican NOM018-STPS 2000, SPRING Singapore, and Japanese JIS Z7250 required information is included in appropriate sections based on the U.S. ANSI Z400.1-2010 format. This product has been classified in accordance with the hazard criteria of the countries listed above.

This product is defined as an "Article" under the U.S. Federal OSHA Hazard Communication Standard (29 CFR 1910.1200), EU Directives, and the Canadian Workplace Hazardous Materials Standard. Refer to Section 15 (Regulatory Information) for specific regulatory citations. As articles, this product presents negligible health and physical hazards under reasonably anticipated circumstances of use. Subsequently, a Material Safety Data Sheet is not required under Standards cited above. This document is prepared to provide persons using this product with additional safety information.

## 2. HAZARD IDENTIFICATION

GLOBAL HARMONIZATION AND EU CLP REGULATION (EC) 1272/2008 LABELING AND CLASSIFICATION: This product is an article and is not required to be classified under CLP Regulation (EC) 1272/2008.

EU 67/548/EEC LABELING AND CLASSIFICATION: This product is an article and is not required to be classified under European Community Council Directive 67/548/EEC or subsequent Directives.

KOREAN ISHA (Notice 2009-68) LABELING AND CLASSIFICATION: As an article, this product is not subject to ISHA Notice 2009-68.

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

This product is an article and as such no components of this product pose a hazard; no component information is given in this SDS.

## 4. FIRST-AID MEASURES

Skin Exposure: As an article, no need for first aid is anticipated.

Inhalation: As an article, no need for first aid is anticipated.

Eye Exposure: As an article, no need for first aid is anticipated.

Ingestion: As an article, no need for first aid is anticipated.

## 5. FIRE-FIGHTING MEASURES

FIRE EXTINGUISHING MEDIA: Use extinguishing materials suitable for the surrounding area.

UNSUITABLE FIRE EXTINGUISHING MEDIA: None known.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product is formulated to be non-flammable and non-combustible.

SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS: No Special protective actions for fire-fighters are anticipated.

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## 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS AND EMERGENCY PROCEDURES: Not applicable.

PERSONAL PROTECTIVE EQUIPMENT: Not applicable.

METHODS FOR CLEAN-UP AND CONTAINMENT: Not applicable.

ENVIRONMENTAL PRECAUTIONS: Not applicable.

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## 7. HANDLING and STORAGE

PRECAUTIONS FOR SAFE HANDLING: No special requirements.

CONDITIONS FOR SAFE STORAGE: No special requirements.

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## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/CONTROL PARAMETERS: As an article which does not release or otherwise result in exposure to hazardous chemicals under normal use; no personal protective equipment (PPE) are required.

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## 9. PHYSICAL and CHEMICAL PROPERTIES

FORM: Steel and Solid

ODOR: Not available.

FLAMMABLE LIMITS (in air by volume, %): Not available.

DECOMPOSITION TEMPERATURE: Not available.

AUTOIGNITION TEMPERATURE: Not available.

FREEZING/MELTING POINT: Not applicable.

VAPOR PRESSURE: Not applicable.

VAPOR DENSITY (air = 1): Not applicable.

EVAPORATION RATE (*n*-BuAc = 1): Not applicable.

SOLUBILITY IN WATER: Insoluble.

COEFFICIENT WATER/OIL DISTRIBUTION: Not established.

COLOR: Silver and Red

ODOR THRESHOLD: Not available.

OXIDIZING PROPERTIES: Not applicable.

PERCENT VOLATILE: 0

FLASH POINT: Not available.

BOILING POINT: Not applicable.

SPECIFIC GRAVITY (water = 1): Not applicable.

CARB VOC: Not applicable.

SCAQMD (U.S. EPA Method 24): Not applicable.

SOLUBILITY IN SOLVENTS: Not applicable.

pH: Not applicable.

---

## 10. STABILITY and REACTIVITY

CHEMICAL STABILITY: This product is stable when properly stored at normal temperatures.

---

## 11. TOXICOLOGICAL INFORMATION

### SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE:

Inhalation: Due to the form of the product, inhalation is unlikely.

Contact with Skin or Eyes: Due to the form of the product, contact with the eyes is unlikely.

Skin Absorption: Due to form of product, skin absorption is not a likely route of exposure.

Ingestion: Ingestion is not a likely route of exposure, due to the form of the product.

Injection: Injection is not likely, due to the form of the product.

---

## 12. ECOLOGICAL INFORMATION

MOBILITY: As an article, this product will not be mobile in soil.

PERSISTENCE AND BIODEGRADABILITY: The metal portions of this product will persist indefinitely.

BIO-ACCUMULATION POTENTIAL: This product has not been tested for bio-accumulation potential.

ECOTOXICITY: This product has not been tested for aquatic or animal toxicity. All releases to terrestrial, atmospheric and aquatic environments should be avoided.

---

---

### 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHODS:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations.  
**U.S. EPA WASTE NUMBER:** Not applicable.

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### 14. TRANSPORTATION INFORMATION

**U.S. DEPARTMENT OF TRANSPORTATION REGULATIONS:** This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.  
**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** This product is not classified as Dangerous Goods, per regulations of Transport Canada.  
**INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):** This product is not classified as dangerous goods under rules of IATA.  
**INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:** This product is not classified as Dangerous Goods by the International Maritime Organization.  
**OFFICIAL MEXICAN STANDARD: REGULATION FOR THE TRANSPORT OF DANGEROUS GOODS AND RESIDUES:** This product is not classified as Dangerous Goods, per transport regulations of Mexico.  
**SINGAPORE STANDARD 286: PART A:** This product has no requirements under the Specification for Caution Labeling for Hazardous Substances, Part 4: Marking of Packages, Containers and Vehicles, as it does not meet the criteria for any hazard class under this regulation.  
**TRANSPORT IN BULK ACCORDING TO THE IBC CODE:** See the information under the individual jurisdiction listings for IBC information.  
**ENVIRONMENTAL HAZARDS:** This material does not meet the criteria of environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID, and ADN) and is not listed in Annex III under MARPOL 73/78.

---

### 15. REGULATORY INFORMATION

#### **UNITED STATES REGULATIONS:**

**U.S. SARA Reporting Requirements:** As an article, this product is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.  
**U.S. SARA Hazard Categories (Section 311/312, 40 CFR 370-21):** ACUTE: No; CHRONIC: No; FIRE: No; REACTIVE: No; SUDDEN RELEASE: No  
**U.S. SARA Threshold Planning Quantity (TPQ):** As an article, this product is not subject to Threshold Planning Quantities, per 40 CFR 370.20.  
**U.S. CERCLA Reportable Quantity (RQ):** Not applicable.  
**U.S. TSCA Inventory Status:** Components of this product are listed on the TSCA Inventory.

#### **UNITED STATES REGULATIONS (continued):**

**California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):** No component is on the California Proposition 65 lists.

#### **CANADIAN REGULATIONS:**

**Canadian DSL/NDL Inventory Status:** Components are on the DSL or NDSL Inventories.  
**Canadian Environmental Protection Act (CEPA) Priorities Substances Lists:** Components are not on the CEPA Priorities Substances Lists.  
**Canadian WHMIS Classification and Symbols:** As an article, this product is not subject the Controlled Product Regulations.

#### **CHINESE REGULATIONS:**

**Chinese Inventory of Existing Chemical Substances Status:** As an article, this product is not subjected to requirements under the Chinese Inventory of Existing Chemical Substances (IECSC).

#### **JAPANESE REGULATIONS:**

**Japanese ENCS:** As an article, this product is not subjected to requirements under ENCS Inventory.  
**Japanese Ministry of Economy, Trade, and Industry (METI) Status:** As an article, this product is not subjected to requirements under the Japanese METI.  
**Poisonous and Deleterious Substances Control Law:** As an article, this product is not subjected to requirements under the Poisonous and Deleterious Substances Control Law.

#### **KOREAN REGULATIONS:**

**Korean Existing Chemicals List (ECL) Status:** As an article, this product is not subjected to requirements under the Korean ECL Inventory.

#### **MEXICAN REGULATIONS:**

**Mexican Workplace Regulations (NOM-018-STPS-2000):** This product is not classified as hazardous.

#### **SINGAPORE REGULATIONS:**

**List of Controlled Hazardous Substances:** As an article, this product is not subjected to requirements under the Singapore List of Controlled Substances.  
**Code of Practice on Pollution Control Requirements:** As an article, this product is not subjected to requirements under the Singapore Code of Practice on Pollution Control.

#### **TAIWANESE REGULATIONS:**

**Taiwan Existing Chemical Substances Inventory Status:** As an article, this product is not subjected to requirements under the Taiwan Existing Chemicals List.

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## 16. OTHER INFORMATION

REVISION DETAILS: Reviewed July 12, 2017, no changes.

REFERENCES AND DATA SOURCES: Contact the supplier for information.

METHODS OF EVALUATING INFORMATION FOR THE PURPOSE OF CLASSIFICATION: Criteria of the GHS were used for classification.

PREPARED BY: CHEMICAL SAFETY ASSOCIATES, Inc. • PO Box 1961, Hilo, HI 96721-1961 • (800) 441-3365

DATE OF PRINTING: November 6, 2017

REVISED: July 12, 2017

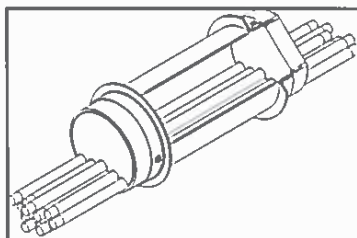
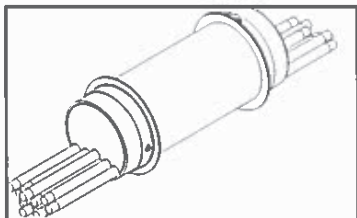


## READY® SLEEVE FIRESTOP SLEEVE

### APPLICATIONS

SpecSeal® READY® SLEEVE Pathways are used to protect or support cables in both non-rated and rated construction.

SpecSeal® READY® SLEEVE Pathways are suitable for use in all common constructions including concrete floors, concrete walls, concrete block walls, and gypsum board/stud wall assemblies up to 10" (254 mm) thick.



### PRODUCT DESCRIPTION

SpecSeal® READY®SLEEVE Pathways are a complete UL® Classified out-of-the-box solution for new cable penetrations through walls. Each sleeve kit contains a pre-cut metallic sleeve, mounting escutcheons, intumescent escutcheon gaskets, wall warning labels, and the amount of putty required to seal both ends.

SpecSeal® READY®SLEEVE Pathway kits are simple in design and installation. All sizes of the Sleeve Pathways include a unique press-fit end cap design to eliminate potential sharp edges and do away with the need for conduit bushings.

SpecSeal® READY®SLEEVE Pathways are sized to the same O.D. as standard EMT (Electrical Mechanical Tubing) and will accept EMT accessories such as grounding bushings. Additionally, SpecSeal® READY®SLEEVE Pathways provide an easy method for compliance with the sleeve attachment requirements of the 2009 IBC Section 713.2 without the need for struts or other bracing.

### FEATURES

- **Economical:** Offers significant material and labor savings.
- **Ready to Install:** No cutting required, no waste!
- **Locks Into Place:** No support struts and clamps required
- **No External Firestop Seal Required:** Factory supplied intumescent firestop gasket
- **Firestop Putty Provided with Kit:** Sufficient to seal ends to 1" (25 mm) depth
- **UL Classified and Code Compliant**
- **For Rated and Non-Rated Barriers:** Putty seal impedes the passage of fire, smoke, superheated gases, particulate dust, and minimizes noise transmission

### PERFORMANCE

SpecSeal® READY®SLEEVE pathways are UL tested and Classified in accordance with ASTM E814 (UL1479) and CAN-ULC- S115. Systems are available for cable penetrations through common wall constructions up to and including 4 hours.



FIRESTOP DEVICE CERTIFIED FOR USE IN THROUGH PENETRATION FIRESTOP SYSTEMS. SEE UL ONLINE CERTIFICATIONS DIRECTORY.

### PHYSICAL PROPERTIES

Available Sizes:	1" (25 mm), 2" (51 mm), and 4" (102 mm)
Sleeve and Plate:	
Construction:	0.059" (1.5 mm) thick steel (zinc plated)
Intumescent Gasket:	
Storage Temperature:	Less than 120°F (49°C)
Expansion Temperature:	350°F (177°C)
Volume Expansion:	15x (free expansion)
In Service Temperature:	-10°F (-23°C) to 120°F (49°C)
Putty Fill Material:	SpecSeal® Firestop Putty
Color:	Red
Odor:	None
Solids:	100%
Storage Temperature:	Less than 120°F (49°C)
Expansion Temperature:	230°F (110°C)
Volume Expansion:	8x (free expansion)
In Service Temperature:	-10°F (-23°C) to 120°F (49°C)
VOC Content:	0.00 lbs/gal (0.0 g/l)
Shelf Life:	No Limit

### SPECIFICATIONS

All data, video, communication, power, and control cables shall be installed through sleeves wherever said cables penetrate fire resistance rated barriers. The sleeve shall be sized to accommodate the present cable bundle as well as anticipated growth. The sleeve kit shall include steel escutcheon plates and intumescent firestop gaskets sized to fit the specific outside diameter of the sleeve and sandwich the barrier to lock said sleeve in place. The sleeve shall be provided with a sufficient thickness of intumescent firestop putty to seal the ends of the sleeve to restrict the passage of fire, smoke, and superheated gases. The firestop sleeve shall be UL Classified and tested to the requirements of ASTM E 814 (ANSI/UL1479) and CAN-ULC- S115.

### SPECIFIED DIVISIONS

Division 7	07 84 00	Through-Penetration Firestopping
Division 26	26 00 00	Basic Electrical Materials & Methods
Division 27	27 00 00	Communications

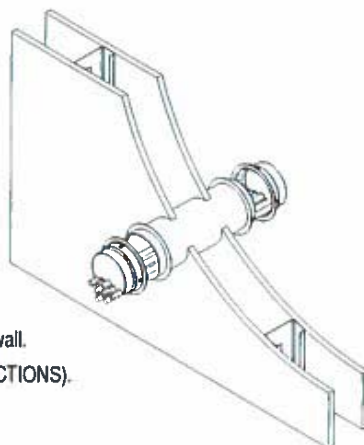


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**Table A:**

Catalog Number	Trade Size*	Opening	
		Min. Opening	Max. Opening
FS100	1" (25 mm)	1.12" (28 mm)	1.25" (32 mm)
FS200/FS201	2" (51 mm)	2.38" (60 mm)	2.50" (64 mm)
FS400	4" (102 mm)	4.50" (114 mm)	4.75" (121 mm)
FS401	4" (102 mm)	4.50" (114 mm)	5.00" (127 mm)



## INSTALLATION INSTRUCTIONS

SpecSeal® READY® SLEEVE pathways are easily installed using the following steps:

1. Create an appropriately sized opening through wall (See Table A).
2. Slide sleeve into opening. Center in wall with sleeve extending equidistant from both sides of wall.  
NOTE: Sleeves can be pre-set to wall depth prior to installation (See INSTALLATION INSTRUCTIONS).
3. Install intumescent gaskets around ends of sleeve and slide to wall surface.
4. Install escutcheon plates around ends of sleeve and slide to wall.
5. With escutcheon plates held tightly to wall, tighten set screws.

FOR 3 & 4 HOUR WALLS: Note: Most barriers are rated at 2 hours or less. In situations where walls are rated for 3 or 4 hours, compress and pack tightly minimum 4 pcf (64 kg/m³) mineral wool batt insulation (not provided with kit) into sleeve prior to installation or putty. Mineral wool must be ordered separately (Catalog Number SSAMW). See UL Systems for more information. MINERAL WOOL IS NOT REQUIRED FOR 1 & 2 HOUR RATED WALLS.

## CABLE AND FIRESTOP INSTALLATION

Install cables through sleeve. After installing cables, pack ends of sleeve with SpecSeal Firestop Putty (included). Install putty to a depth of 1" (25 mm). Pack putty completely around cable bundle sealing all gaps and interstices. Install Barrier Labels on both wall surfaces.

## CABLE CHANGES AND MAINTENANCE

SpecSeal® Firestop Putty is permanently non-hardening to facilitate the removal or addition of cables. After cable changes, reinstall putty to original depth. NOTE: This product represents a UL Classified Firestop System. Only approved SpecSeal® materials may be used. NO SUBSTITUTIONS ARE PERMITTED.

## TECHNICAL SERVICE

Technical information including Product Data Sheets, Installation Instructions, applicable UL Classified Systems, Certificates of Conformance, and suggested specifications are available at the company's web site ([www.stifirestop.com](http://www.stifirestop.com)). For other information, contact the factory directly by dialing (800) 992-1180.

## PRECAUTIONARY INFORMATION

No unusual hazards are known or expected. Observe normal safety procedures during installation.

## AVAILABILITY

SpecSeal® READY® SLEEVE Pathways are available from authorized STI distributors worldwide. Consult factory for the names and locations of the nearest sales representatives or distributors. Ordering information is listed below:

**TABLE B: ORDERING INFORMATION**

CAT. NO.	DESCRIPTION	Qty.	Case Qty.	Weight
FS100	1" (25 mm) sleeve, escutcheon plates, gaskets, and putty	1	6	1.00 lb. (.45 kg)
FS200	2" (51 mm) sleeve, escutcheon plates, gaskets, and putty	1	6	2.00 lb. (.90 kg)
FS400	4" (102 mm) sleeve, escutcheon plates, gaskets, and putty	1	6	4.00 lb. (1.8 kg)
FS201	2" (51 mm) sleeve, large escutcheon plates, gaskets and putty	1	N/A	2.60 lb. (1.3 kg)
FS401	4" (102 mm) sleeve, large escutcheon plates, gaskets and putty	1	N/A	4.80 lb. (2.2 kg)

**LIMITED WARRANTY:** STI warrants that its products will be free of defects for one year from the date of purchase. In the event a product does not conform to this warranty, the sole and exclusive remedy is, at STI's option, replacement of the product or refund of the purchase price. The warranty provided herein shall be void and of no effect in the event that the product is not installed in accordance with STI's published instructions, listed systems and applicable building and safety codes. THIS WARRANTY IS IN LIEU OF ALL OTHER REPRESENTATIONS AND EXPRESSED OR IMPLIED WARRANTIES (including the implied warranties of merchantability or fitness for a particular use) AND UNDER NO CIRCUMSTANCES SHALL STI BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING, WITHOUT LIMITATION, ANY LOSS OF REVENUE, PROFIT OR USE. Prior to use, the user shall determine the suitability of the product for its intended use, and the user assumes all risks and liability for subsequent use. No person other than an officer of STI is authorized to bind STI to any other warranty for any product for which this warranty is issued.

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Specified Technologies Inc.

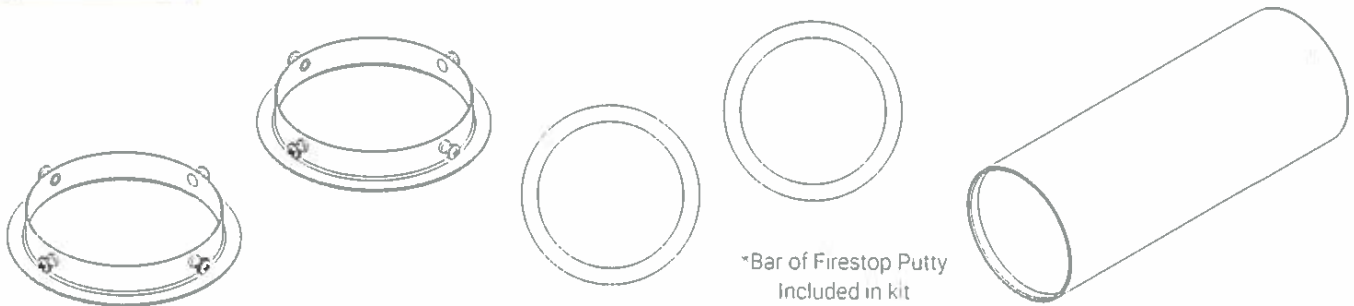
Specified Technologies Inc. • Somerville NJ 08876 • Phone: 800.992.1180 • Fax: 908.526.9623





# INSTALLATION INSTRUCTIONS

## SpecSeal® Ready Sleeve



Parts Included (Not to Scale)

### New Work Installations

**1**

Create round opening in assembly.

**2**

Place sleeve in opening.

**3**

Install 1 flange and gasket onto sleeve

**4**

With escutcheon plates held tightly against wall, tighten screws. Repeat process on other side of wall.

**5**

After cabling is installed, install SpecSeal® Putty into sleeve on each side of assembly, flush with ends of steel sleeve. See appropriate UL System for more detail.

TABLE 1

Catalog Number	Trade Size	Minimum Opening Size	Maximum Opening Size
FS100	1" (25 mm)	1.163" (30 mm)	1.25" (32 mm)
FS200, FS201	2" (51mm)	2.375" (60 mm)	2.5" (65 mm)
FS400, FS401	4" (102 mm)	4.500" (114 mm)	4.5" (114 mm)



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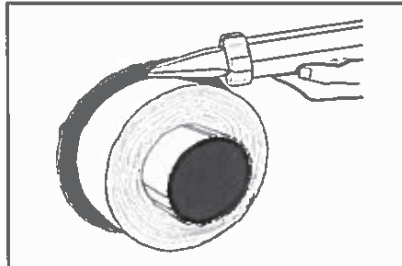


## SERIES SSS INTUMESCENT SEALANT

### APPLICATIONS

SpecSeal® Series SSS Sealant is used to seal through-penetrations as well as construction gaps and blank openings. SpecSeal Series SSS has been tested for use with metallic penetrants up to 30" (762 mm) trade size. This product is also used with other SpecSeal® Products such as SpecSeal® Firestop Collars and Wrap Strips.

See Table A for a summary application list.



### PRODUCT DESCRIPTION

SpecSeal® Series SSS Sealant is a latex based, high solids firestop compound. This material, when properly installed, will effectively seal penetration openings against the spread of fire, smoke, toxic gasses and water.

SpecSeal® Series SSS Sealant features STI's patented and proprietary two-stage intumescent technology. When exposed to high temperatures or fire, this material expands aggressively in a highly directionalized fashion to quickly close off voids left by the burning or melting of combustible materials.

SpecSeal® Series SSS Sealant's unique multi-viscosity formula yields a single grade that has excellent caulking properties as well as high build properties on vertical or overhead surfaces. This single grade may be pumped, caulked (standard cartridge or bulk loaded), knifed or troweled. In addition, SpecSeal Series SSS Sealant does not contain PCB's or asbestos.

SpecSeal® Series SSS Sealant is storage stable (when stored according to the manufacturer's recommendations) and will not separate nor shrink when dried. SpecSeal Series SSS Sealant will adhere to all common construction and penetrant materials and contains no solvents that might adversely effect plastic pipes or cable jackets.

FEATURE	BENEFIT
• Water-Based	Easy installation, cleanup, and disposal.
• Two-Stage Intumescence	Extremely fast and directionalized expansion.
• Endothermic Fillers	Absorb heat & release water.
• High Solids Formula	No shrinkage!
• Sandable & Paintable	(when dry)
• Water-Resistant	Will not re-emulsify when dry!
• Safe	Safe for contact with plastics.
• Red Color	Easy identification and inspection.
• Multi Viscosity Grade	Excellent caulking properties along with high build capabilities.
• Excellent Smoke Seal	

### PERFORMANCE

SpecSeal® Series SSS Sealant is the basis for systems that meet the exacting criteria of ASTM E814 (UL1479) and CAN/ULC S115 as well as the time-temperature requirements of ASTM E119 (UL263). Systems have been tested for all common forms of construction and most common penetrants with ratings up to 4 hours. STI firestop systems are designed to maximize the fire resistance of the seal by not only sealing off the spread of fire and hot gasses but also by minimizing the amount of heat conducted through the assembly. Thus all systems have been designed to provide T Ratings capable of matching the rating of the wall or floor assembly (where possible) when tested without penetrants.

<p>SpecSeal® SSS Intumescent Sealant Fill, Void or Cavity Material CERTIFIED FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS SEE UL ONLINE CERTIFICATIONS DIRECTORY</p>	<p>APPROVED</p>	<p>SYSTEM COMPATIBLE</p>	<p>FBC™ System Compatible indicates that this product has been tested, and is monitored on an ongoing basis, to assure its chemical compatibility with FlowGuard® Gold®, BlazeMaster® and Corzan® pipe and fittings. FBC, FlowGuard Gold, BlazeMaster and Corzan are licensed trademarks of The Lubrizol Corporation.</p>
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### PHYSICAL PROPERTIES

Properties	Series SSS	Properties	Series SSS
Color	Red	Smoke Developed*	0"
Odor	Mild Latex	STC Rating (ASTM E90/ASTM C919)	62
Density	9.4 lb/gal (1.13 kg/L)	VOC Content (EPA Method 24/ASTM D3960)	0.24 lbs/gal (29.2 g/L)
Solids Content by Weight	80%	Shelf Life	2 yrs
Solids Content by Volume	67.1%	Expansion Begins	230°F (110°C) 1st Stage 350°F (177°C) 2nd Stage
pH	8.3	Expansion Range	230°F to > 1,000°F (110°C to > 538°C)
In Service Temperature	-10°F (-23°C) - 185°F (85°C)	Volume Expansion	> 500% Free Expansion
Storage Temperature	40°F (4°C) - 95°F (35°C)		
Flame Spread	0"		

\* Tested to ASTM E84 (UL723) at 14% surface coverage (modified test for sealants and caulks)



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STI Product Data Sheet • Series SSS Intumescent Sealant • ZDFOD-5001-1577

1 of 4



**Table A:  
APPLICATIONS**

**TESTED AND CLASSIFIED  
FOR FIRE RESISTANCE**

- **Metallic Pipes** including steel, iron, or copper pipe and tubing through all common constructions.
- **Nonmetallic Pipes, Conduits & Tubing** including PVC, CPVC, PVDF, PEX, PEX-AL-PEX, ABS, PB through all common constructions.
- **Cable, Cable Trays & Bus Duct**
- **HVAC Ductwork**
- **Insulated Pipes**
- **Multi-Service Penetrations** including AC line sets, electrical, telephone, or TV service entrance and interior penetrations.
- **Complete Wood Floor firestopping** package for electrical, plumbing, HVAC, TV and telephone.

**SPECIFICATIONS**

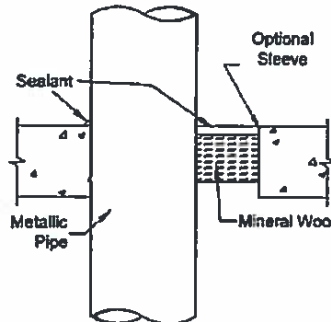
The firestopping sealant shall be a one-part, two-stage intumescent latex compound. The sealant when exposed to high heat or flame shall be capable of expanding a minimum of 8 times. Range of continuing expansion shall be from 230°F to >1,000°F (110°C to >538°C). The sealant shall be thixotropic and shall be capable of caulking or troweling onto vertical surfaces or overhead. The sealant shall be UL Certified and/or FM Systems Approved and tested to the requirements of ASTM E814 (UL1479) and CAN/ULC S115.

**SPECIFIED DIVISIONS**

- DIV. 7 07840 Through Penetration Firestopping
- DIV. 13 13900 Special Construction Fire Suppression & Supervisory Systems
- DIV. 15 15250 Mechanical Insulation – Fire Protection
- DIV. 16 16050 Basic Electrical Materials & Methods

Shown below and on the following page are just a few of the most common applications for SpecSeal Series SSS Sealant. Consult the Technical Library at [www.stifirestop.com](http://www.stifirestop.com) for over 200 available designs utilizing this product.

**Fig. 1: METALLIC PIPE PENETRATIONS -  
CONCRETE/MASONRY FLOORS & WALLS**



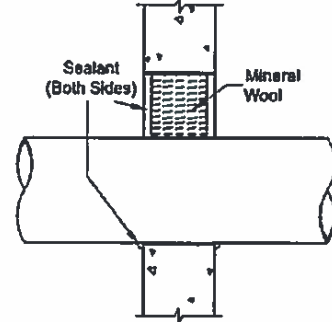
**UL SYSTEM C-AJ-1079**

F Rating: 4 Hr • T Rating: 0

Steel or Iron Pipe: 24", Copper Pipe 6"

Annulus: Point Contact to 4" • Sealant Depth: 1/2" Forming Material: Nom 4 pcf Mineral Wool

Thickness: 1-1/2" for 6" Steel or Iron Pipe  
3" for 4" Copper or 6" Iron or Steel Pipe



**UL SYSTEM C-AJ-1217**

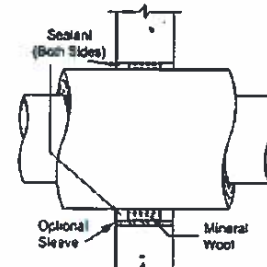
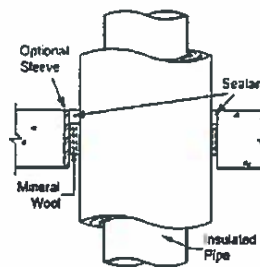
F Rating: 4 Hr • T Rating: 0

Steel or Iron Pipe: 30", Copper Pipe 6"

Annulus: Point Contact to 2" • Sealant Depth: 1/2" Forming Material: Nom 4 pcf Mineral Wool

Tightly Packed to a 3" Depth.

**Fig. 2: INSULATED METALLIC PIPE PENETRATIONS -  
CONCRETE/MASONRY FLOORS & WALLS**



**UL SYSTEM C-AJ-5087**

F Rating: 2 Hr • T Rating: 1

Steel or Iron Pipe: 24"

Insulated with 2" Thick Fiber Glass or Mineral Wool Pipe Insulation

Annulus: 1/2" to 1-1/2" • Sealant Depth: 1/2"

Forming Material: Nom 4 pcf Mineral Wool Tightly Packed to a 4" Depth.

**SEALANT REQUIREMENTS IN CUBIC INCHES PER 1/4 INCH OF INSTALLED DEPTH\***

Pipe Size		1.5	2.0	3.0	4.0	5.0	Diameter of Opening (in.)									
Trade Size	Pipe O.D.						6.0	7.0	8.0	10	12	14	16	18	20	24
0.5"	0.840	0.3	0.6	1.6	3.0	4.8	6.9	9.3	12.4	19.5	26.1	38.3	132.6			
1"	1.315	0.1	0.4	1.4	2.8	4.6	6.7	9.3	12.2	19.3	27.9	38.1	132.4			
1.5"	1.900			1.1	2.4	4.2	6.4	8.9	11.9	18.9	27.6	37.8	132.0			
2"	2.375			0.7	2.0	3.8	6.0	8.5	11.5	18.5	27.2	37.4	131.6			
2.5"	2.875			0.1	1.5	3.3	5.4	8.0	10.9	18.0	26.7	36.9	131.1			
3"	3.500				0.7	2.5	4.7	7.2	10.2	17.2	25.9	36.1	130.3			
3.5"	4.000					1.8	3.9	6.5	9.4	16.5	25.1	35.3	129.6			
4"	4.500					0.8	3.0	5.6	8.5	15.6	24.2	34.4	128.7			
6"	6.625	*Different Sealant Depth? 1/2" Multiply by 2 5/8" Multiply by 2.5 1" Multiply by 4 1-1/4" Multiply by 5						1.1	4.0	11.1	19.7	29.9	124.2			
8"	8.625									4.9	13.6	23.8	118.0			
10"	10.750										5.6	15.8	110.0			
12"	12.750											6.6	100.8			
24"	24.000															19.6

IMPORTANT NOTE: This table is for estimation purposes only. Consult UL Fire Resistance Directory or STI Product & Application Guide for specific installation requirements and limitations. Metric Estimation Table available upon request.

## INSTALLATION INSTRUCTIONS

**General:** Areas to be protected must be clean and free of oil, loose dirt, rust or scale. Installation temperatures must be between 35°F and 100°F (2°C and 38°C). Allow product to dry a minimum of 24 hours before exposure to moisture.

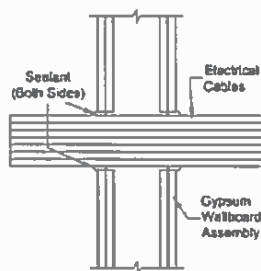
**System Selection:** Selection of an appropriate firestop system design is critical to the fire protection process. Space limitations preclude highly detailed information pertaining to individual application systems. Please consult the STI Product & Application Guide as well as the UL® Fire Resistance Directory for additional information.

**Forming:** Some installations may require forming as either an integral part of the system or as an option to facilitate installation. In systems where forming is required, mineral wool batts (min. nom. 4 lb/cu. ft (64 kg/m³) density) are recommended. Some gypsum wallboard systems utilize fiberglass. Cut forming material over-size to allow for tight packing. Position forming material to allow for the proper depth of fill material.

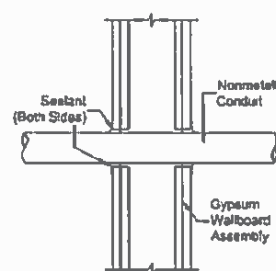
**Fill Material:** SpecSeal® Series SSS Sealant may be installed by caulking using a standard caulking gun or from bulk containers using a bulk loading caulk gun, or by manually troweling using a mason's trowel or putty knife. If the sealant tends to pull back from a surface, clean the surface with a damp rag or sponge and reapply. Work sealant into all areas exercising care to eliminate voids or seams. The surface of the sealant can be smoothed using a putty knife dipped in water. Adding water to the sealant itself is not recommended. Sealant (when dry) may be sanded and painted using most non-solvent based paints. In gypsum wallboard penetrations, crown sealant 1/4" (6 mm) from penetrant to wallboard surface at a point approximately 1/2" (13 mm) or more from opening. Sealant (when dry) may be painted using most non-solvent based paints.

**Smoke Sealing:** In some applications including firestop collars, SpecSeal® Series SSS Sealant is recommended as a smoke seal. It is suggested in these application that the sealant be applied to both sides of walls. In floor applications, a sealing bead is suggested top and bottom.

**Fig. 3: ELECTRICAL, DATA OR COMMUNICATIONS PENETRATIONS - RATED GYPSUM WALLBOARD ASSEMBLIES**

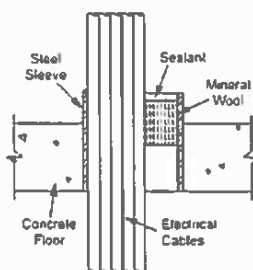


**UL SYSTEM W-L-3076**  
F Rating: 1 or 2 Hr • T Rating: 0 hr  
Up to 4" Cable Bundle  
Centered in 4 - 1/2" Opening  
Sealant Depth: 5/8" with 1/4" Crown

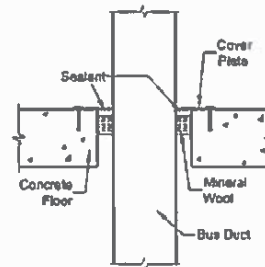


**UL SYSTEM W-L-2093**  
F Rating: 1 or 2 Hr • T Rating: 1, 1-1/2 Hr  
2" Rigid PVC, ENMT,  
or Optical Fiber Raceway,  
1-1/4" PVDF Optical Fiber Raceway  
Sealant Depth: 5/8" with 1/4" Crown

**Fig. 4: ELECTRICAL PENETRATIONS - CONCRETE/MASONRY FLOORS & WALLS**

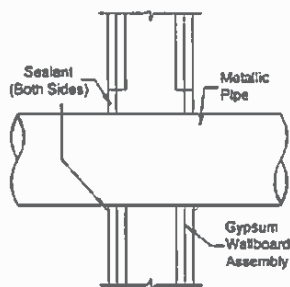


**UL SYSTEM C-AJ-3154**  
F Rating: 1, 2, 3 & 4 Hr • T Rating: 0, 1/2, & 2 3/4 Hr  
Optional Sleeve-PVC or Steel  
Electrical, Telephone or Data Cables  
Annulus: 0" to 2"  
Sealant Depth: 1/2"  
Forming Materials: Nom 4 pcf Mineral Wool  
Sealant Depth: 1/2" for 1, 2, 3 Hr; 1" for 4 Hr

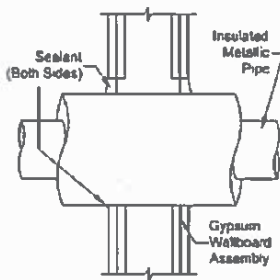


**UL SYSTEM C-AJ-6008**  
F Rating: 3 Hr • T Rating: 0 Hr  
Aluminum or Copper Bus Duct 5,000 Amp  
Steel Cover Plate  
Sealant Depth: 1/2"  
Forming Materials: Nom 4 pcf Mineral Wool  
Tightly Packed to a depth of 1-1/2"

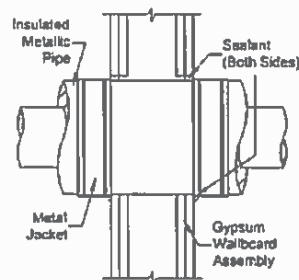
**Fig. 5: BARE & INSULATED METALLIC PIPE PENETRATIONS - RATED GYPSUM WALLBOARD ASSEMBLIES**



**UL SYSTEM W-L-1049**  
F Rating: 2 Hr • T Rating: 0 hr  
Steel or Iron Pipe: 24", Copper Pipe: 6"  
Annulus: Point Contact to 2"  
Sealant Depth: 5/8" with 3/8" Crown



**UL SYSTEM W-L-5014**  
F Rating: 1 & 2 Hr • T Rating: 1 & 2 Hr  
Steel or Iron Pipe: 12", Copper Pipe: 4"  
Insulated with 2" Thick Fiber Glass  
or Mineral Wool Pipe Insulation  
Annulus: 0" to 1-1/4"  
Sealant Depth: 5/8" with 3/8" Crown



**UL SYSTEM W-L-5051**  
F Rating: 1 & 2 Hr • T Rating: 3/4, 1, 1-1/2 & 2 Hr  
Steel or Iron Pipe: 16", Copper Pipe: 6"  
Foam Glass Pipe Insulation: 1" to 3" Thick  
12" Wide 0.010" Thick Metal Jacket Wrapped Around Insulation and Secured with Metal Banding as Shown Annulus: 0" to 1-1/2"  
Sealant Depth: 5/8"



## INSTALLATION INSTRUCTIONS

**LIMITATIONS:** SpecSeal® Series SSS Sealant is water-based and cures through the evaporation of water. Low temperatures as well as high humidity may retard drying. Non-porous or impermeable backing materials, plates, or coatings may retard the drying process. Do not paint or seal in any way that prevents contact with air until sealant has dried through completely. This product has been designed to be safe with plastics and has been used extensively and successfully with a variety of different types of plastic pipes, tubes, and plastic cable insulations. Variations in these materials however, make it impossible to guarantee compatibility. STI strongly recommends that the user consult with the manufacturer of the pipe, tubing, or cable in question regarding any known sensitivities or potential restrictions before applying this product.

## MAINTENANCE

**Inspection:** Installations should be inspected periodically for subsequent damage. Any damage should be repaired using SpecSeal® products per the original approved design.

**Retrofit:** When adding or removing penetrants, care should be taken to minimize damage to the seal. Reseal using SpecSeal® products per the approved design. **NOTE:** New penetrants of a different nature than the original design may require a totally new firestop design or extensive modifications to the existing design. Reseal all openings as per the requirements of the modified design.

## TECHNICAL SERVICE

Specified Technologies Inc. provides toll free technical support to assist in product selection and appropriate installation design. UL Systems, Material Safety Data Sheets and other technical information is available through the Technical Library at [www.stifirestop.com](http://www.stifirestop.com).

## PRECAUTIONARY INFORMATION

Consult Material Safety Data Sheet for additional information on the safe handling and disposal of this material. Wash areas of skin contact with soap and water. Avoid contact with eyes. SEALANT IS CONDUCTIVE UNTIL DRY.

## AVAILABILITY

SpecSeal® Series SSS is available from authorized STI distributors worldwide. Visit [www.stifirestop.com](http://www.stifirestop.com) or call 800.992.1180 for information concerning where to purchase these and other STI products.

CATALOG NUMBER	DESCRIPTION
SSS100	10.1 oz. Tube (300 ml) 18.2 cu. in.
SSS129	29 oz. Tube (858 ml) 52 cu. in.
SSS120	20 oz. Sausage (592 ml) 36 cu. in.
SSS102	2 Gal. Pail (7.6 liters) 462 cu. in.
SSS105	5 Gal. Pail (19.0 liters) 1,155 cu. in.

## CITY OF NEW YORK MEA 28-92-M

**IMPORTANT NOTICE:** All statements, technical information, and recommendations contained herein are based upon testing believed to be reliable, but the accuracy and completeness thereof is not guaranteed.

**LIMITED WARRANTY:** STI warrants that its products will be free of defects for one year from the date of purchase. In the event a product does not conform to this warranty, the sole and exclusive remedy is, at STI's option, replacement of the product or refund of the purchase price. The warranty provided herein shall be void and of no effect in the event that the product is not installed in accordance with STI's published instructions, listed systems and applicable building and safety codes. THIS WARRANTY IS IN LIEU OF ALL OTHER REPRESENTATIONS AND EXPRESSED OR IMPLIED WARRANTIES (including the implied warranties of merchantability or fitness for a particular use) AND UNDER NO CIRCUMSTANCES SHALL STI BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING, WITHOUT LIMITATION, ANY LOSS OF REVENUE, PROFIT OR USE. Prior to use, the user shall determine the suitability of the product for its intended use, and the user assumes all risks and liability for subsequent use. No person other than an officer of STI is authorized to bind STI to any other warranty for any product for which this warranty is issued.

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Specified Technologies Inc. • Somerville, NJ 08876 USA • US Toll Free: (800) 992-1180 • Outside US: +1 908 526 8000 • [www.stifirestop.com](http://www.stifirestop.com)



Technical information will be provided after contract award by CCG representative.

You can see the layout that the CCG intends to carry out in the Survival section on the contract drawings. No furniture, cabinets are to be provided in this contract.

Solicitation No. - N° de l'invitation  
EF928-190384/A  
Client Ref. No. - N° de réf. du client  
EF928-190384

Amd. No. - N° de la modif.  
File No. - N° du dossier  
QCN-8-41214

Buyer ID - Id de l'acheteur  
QCN039  
CCC No./N° CCC - FMS No./N° VME

## ANNEX "B"

### BASIS OF PAYMENT

Item	Description	Quantity	Unit	Firm price
1	DESIGN OF SHELTERS, SHEDS, FOUNDATIONS AND ACCESSORIES AS DESCRIBED IN ANNEX A - STATEMENT OF NEEDS AND PERFORMANCE SPECIFICATIONS AND PLANS PROVIDED.	1	Lot	\$
2	FABRICATION OF SHELTERS, SHEDS, EXTENSIONS AND ACCESSORIES AS DESCRIBED IN ANNEX A - STATEMENT OF NEEDS AND PERFORMANCE SPECIFICATIONS AND PLANS PROVIDED. (includes the supply of hardware and fasteners)	1	Lot	\$
	DELIVERY DDP (LEVIS, QUEBEC, CANADA) (Includes customs duties, handling, delivery and unloading.)	1	Lot	\$
TOTAL (CAD)				\$
Note: Prices in Canadian dollars excluding Applicable Sales Taxes.				

Solicitation No. - N° de l'invitation  
EF928-190384/A  
Client Ref. No. - N° de réf. du client  
EF928-190384

Amd. No. - N° de la modif.  
File No. - N° du dossier  
QCN-8-41214

Buyer ID - Id de l'acheteur  
QCN039  
CCC No./N° CCC - FMS No./N° VME

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## **ANNEX "C"**

### **PLANS**





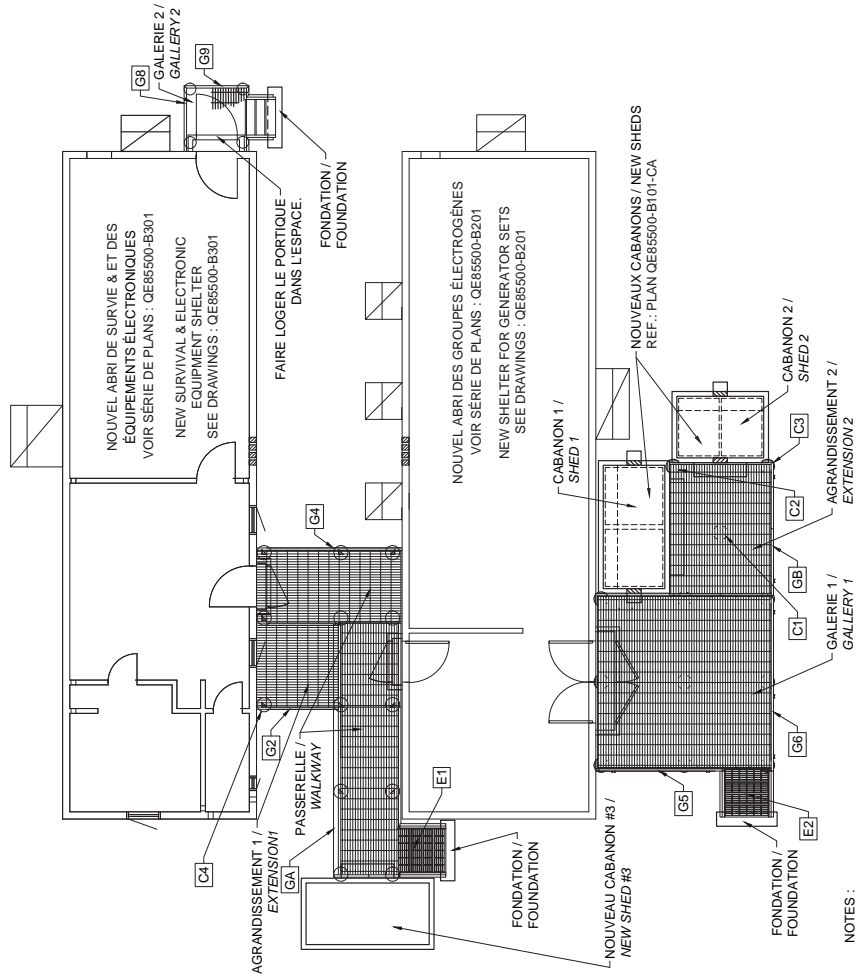






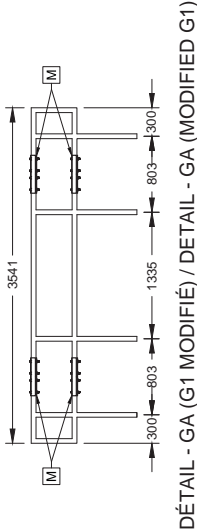




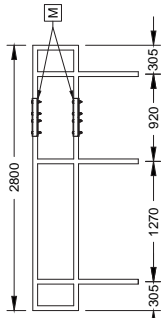


1. LES GARDE-CORPS QUI ONT UNE IDENTIFICATION IDENTIQUE AU PLAN QE85500-B101-EN-AY NE SUBISSENT AUCUNE MODIFICATION (G2, G4, G5, G6, G8 ET G9).
2. LES GARDE-CORPS G1 ET G7 FOURNI R LE MATÉRIEL POUR CE FAIRE.
3. TROIS NOUVELLES COLONNES POUR SUPPORTER L'AGRANDISSEMENT 2 (C1, C2 ET C3) ET UNE SEULE POUR L'AGRANDISSEMENT 1 (C4).
4. AUCUNE MODIFICATION À APPORTER À LA GALERIE 2. FAIRE EN SORTE QUE LA PORTE DU PORTIQUE PUISSE OUVRIR À 90 DEGRÉS TOUT EN RESPECTANT LES DIMENSIONS DE LA GALERIE 2.

1. THE GUARDRAILS WITH THE SAME IDENTIFICATION AS SHOWN ON Q085500-B101-ENV-A DON'T CHANGE (G2, G4, G5, G6, G8 ET G9).
2. THE GUARDRAILS GA AND GB COME FROM THE CHANGES OF THE GUARDRAILS G1 AND G7. SUPPLY THE MATERIALS TO THAT END.
3. THREE NEW FIBERGLASS COLUMNS FOR THE ENLARGEMENT 2 (C1, C2 AND G3) AND ONLY ONE FOR THE ENLARGEMENT 1 (C4).
4. NOTHING TO DO WITH THE GALLERY 2. TO BE SURE THAT THE GANTRY DOOR OPENS TO 90 DEGREES IN THE SAME GALLERY 2 SIZES.



DÉTAIL - GA (G1 MODIFIÉ) / DETAIL - GA (MODIFIED G1)



DÉTAIL - GB (G7 MODIFIÉ) / DETAIL - GB (MODIFIED G7)

 [M]: PIÈCES À FOURNIR POUR MODIFIER LE GARDE-CORPS.  
CONSULTER LE PLAN QE85500-B101-PA 02/02 /  
PARTS TO SUPPLY FOR THE GUARDRAILS MODIFICATIONS.  
SEE THE QE85500-B101-PA 02/02 DRAWING

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rev	description	by	date	
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drawing - dessin		date	
drawn - dessiné	date	drawn - dessiné	date
GDT	2019-01-10	GDT	2019-01-10
designed - conception	date	designed - conception	date
J. DE MONTIGNY		J. DE MONTIGNY	
checked - vérifié	date	checked - vérifié	date
J. DE MONTIGNY		J. DE MONTIGNY	
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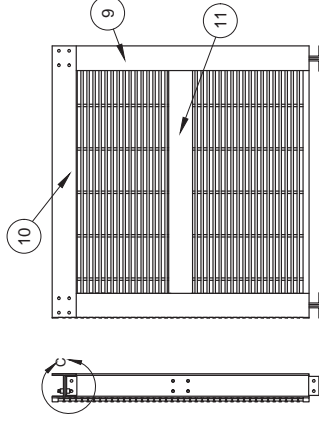
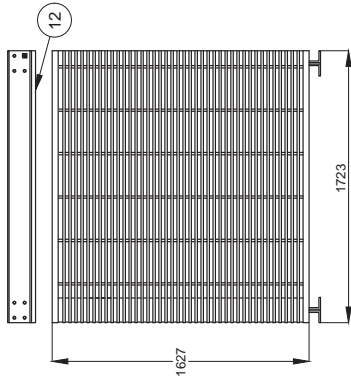
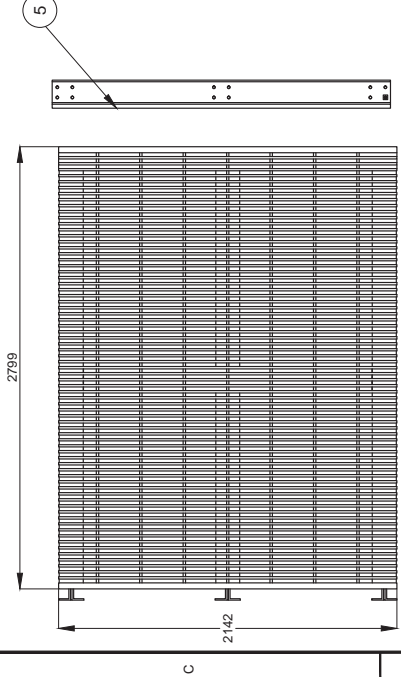






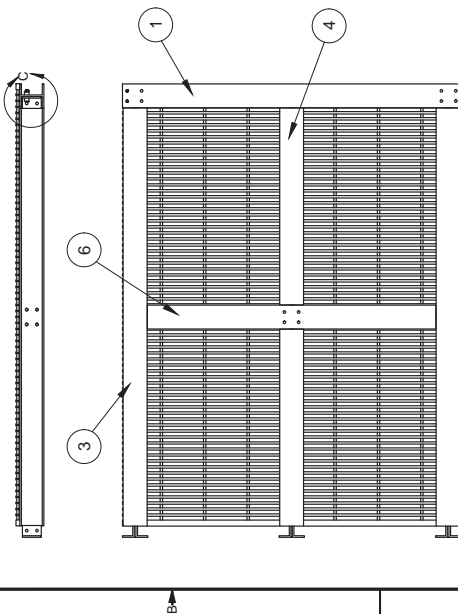






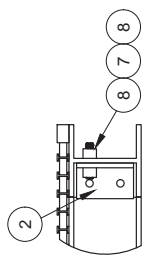
AGRANDISSEMENT 1 / EXTENSION 1

AGRANDISSEMENT 1 - PIÈCES À FOURNIR / EXTENSION 1 - PARTS TO SUPPLY				
NO	NO DE PIECE / PART NO	DESCRIPTION	QTE / QTY	
2	CORNIÈRE / ANGLE	FIBERGLASS 80x80x10x120, FEUILLE 4	12	
5	CALLEBOTS / GRATING	1627X172x25, NOTE 8	1	
7	91315A235	MACMASTER OR EQUIVALENT	20	
8	9132A035	FIBERGLASS SQUARE NUT, 5/8"X11 MACMASTER OR EQUIVALENT	40	
9	POUTRE / BEAM 9	H BEAM 152X162X10X1627	2	
10	POUTRE / BEAM 10	H BEAM 152X162X10X1723	1	
11	POUTRE / BEAM 11	H BEAM 152X162X10X1411 FIBERGLASS TREADED ROD, 5/8"X11	1	



AGRANDISSEMENT 2 / EXTENSION 2

AGRANDISSEMENT 2 - PIÈCES À FOURNIR / EXTENSION 2 - PARTS TO SUPPLY			
NO	NO DE PIÈCE / PART NO	DESCRIPTION	QTE / QTY
1	POUTRE / BEAM 1	H BEAM 12X152X10X2142	1
2	CORNIÈRE / ANGLE	FIBERGLASS 80x80x10x120 FEUILLE 4	20
3	POUTRE / BEAM 3	H BEAM 12X152X10X2790	2
4	POUTRE / BEAM 4	H BEAM 12X152X10X1380	2
5	CILLEBOTIS / GRATING	214X2799X25, NOTE 8	1
6	POUTRE / BEAM 6	H BEAM 12X152X10X1972	1
7	91315A235	FIBERGLASS TREADED FLOOR 508*11 MACMASTER OR EQUIVALENT	40
8	9132A005	FIBERGLASS SQUARE NUT 508*11 MACMASTER OR EQUIVALENT	80



### DETAIL C

ÉCHELLE / SCALE 1:10



















CAN INSTRUCTIONS ON DRAWING  
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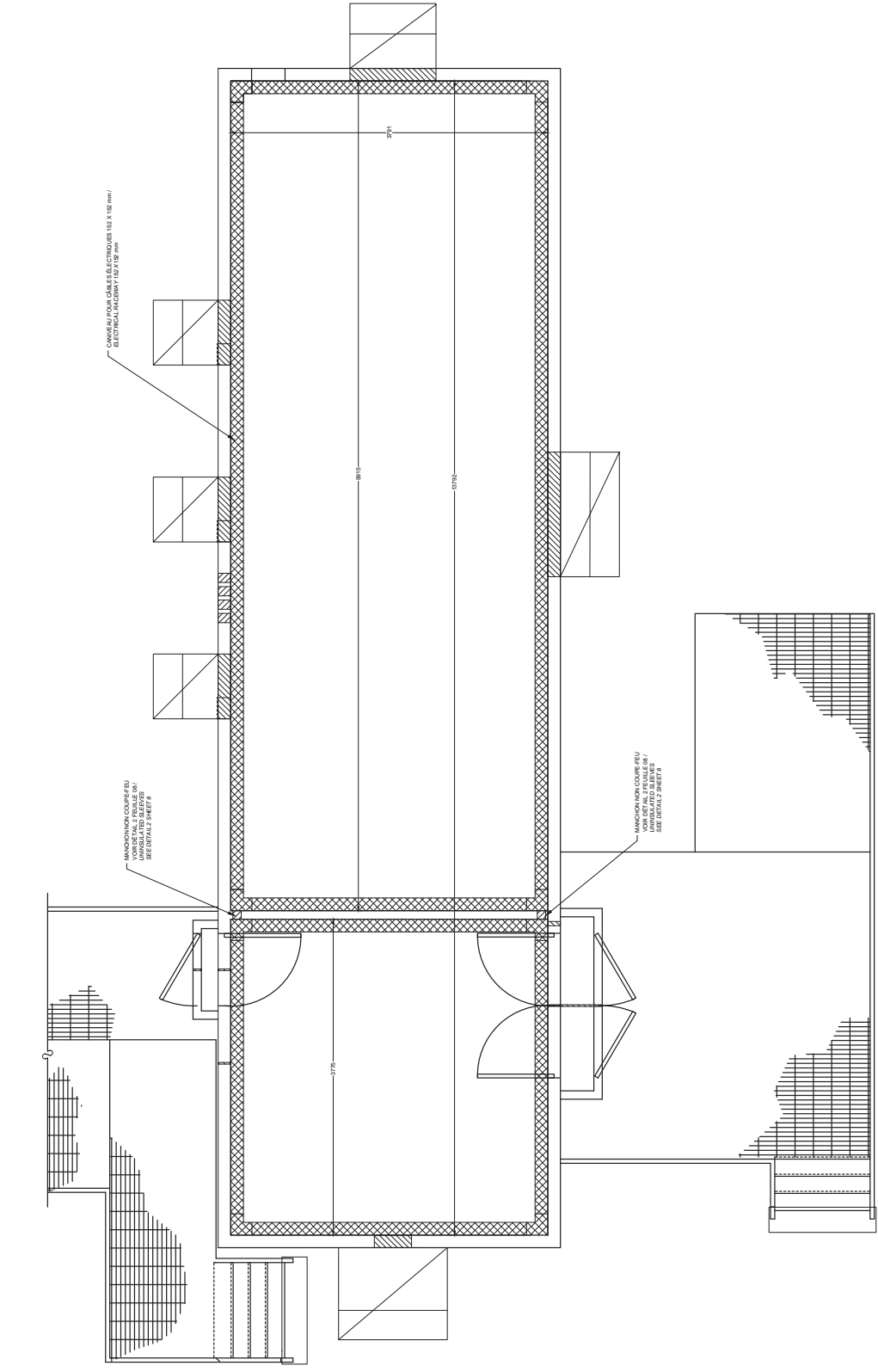
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Recher et Coeur  
Consultants  
Architects  
Engineers  
Costs  
Contractors

Vendor Information: Board stamp



1 VUE EN PLAN / PLAN VIEW  
ECHELLE / SCALE: 1:25

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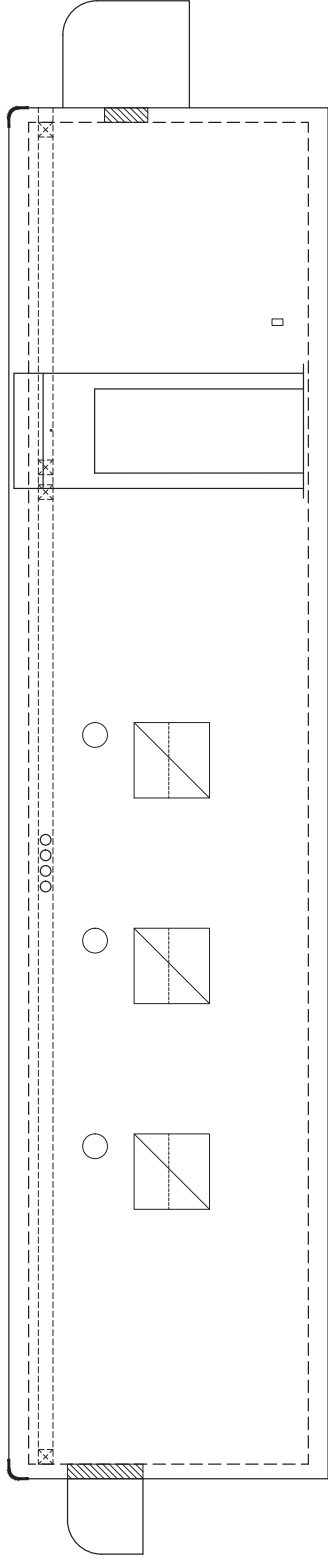
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REPORT ANY ERRORS OR OMISSIONS TO US IMMEDIATELY  
SIGNALER LES ERREURS OU LES OMISSIONS AU GESTIONNAIRE SJ

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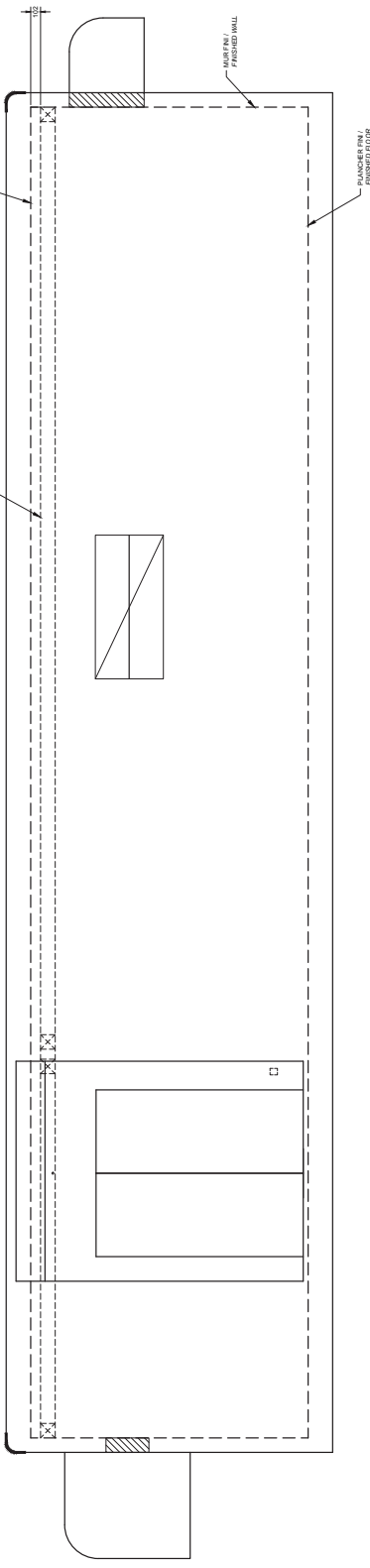
Revised and Corrected  
Corrections  
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Corrections  
Corrections

Vendor Information: Board name



1 VUE ÉLEVATION ARRIÈRE / REAR ELEVATION  
ÉCHELLE / SCALE: 1:25

CONTINUER À LA COTE 150.00 M / 150.00 M



2 VUE ÉLEVATION AVANT / FRONT ELEVATION  
ÉCHELLE / SCALE: 1:25

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CAP ENDUSURES DRAWING  
PROJET PA 040

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PITCH

0 1 2 3 4 5 6  
PITCH

REPORT ANY ERRORS OR OMISSIONS TO US IMMEDIATELY  
SIGNALER LES ERREURS OU LES OMISSIONS AU GESTIONNAIRE SUJ



Franchises and Owners  
Contractors  
Consultants  
Costs Guard  
Candidates

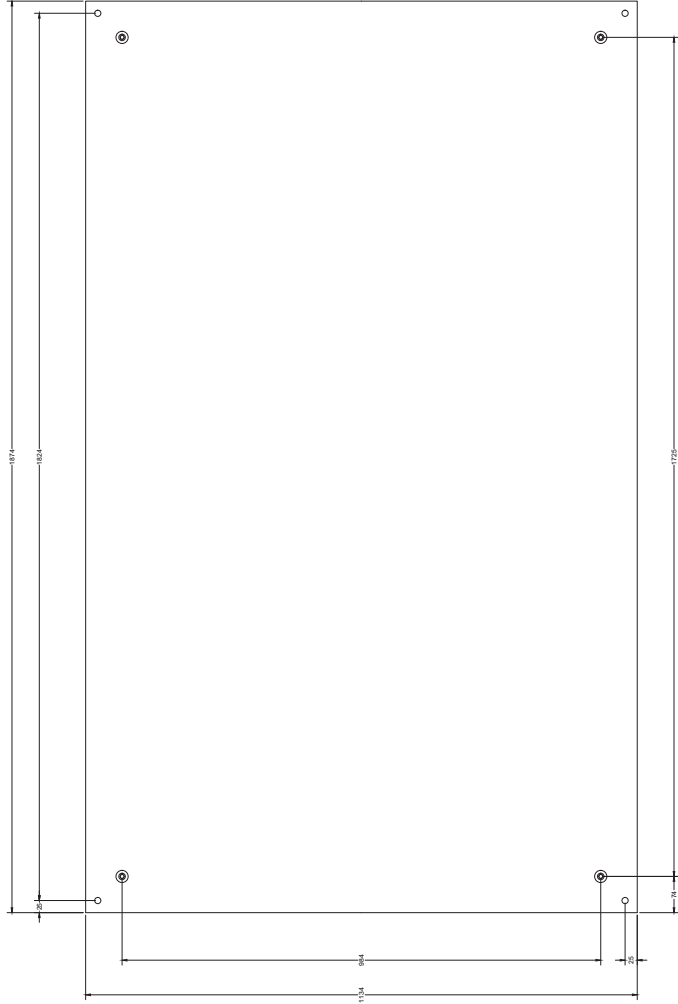
Vendor Information: Board: steel

PLAQUE D'ENCRAGE EN ACIER TYPE ENTRE LES GROUPEES ELECTROGENES ET LE PLANCHER DE L'ABRI  
/ INTERFACE PLATE FOR GENERATOR SETS

16-8 STAINLESS STEEL FLAT HEAD SOCKET CAP SCREW (40)

16-8 STAINLESS STEEL FLAT HEAD CAP SCREW + 80 FLAT WASHER (40)  
LENGTH TO BE DETERMINED ACCORDING TO FLOOR ANCHOR DESIGN

COMPARER LES DIMENSIONS DE LA PLANCHE EN BOIS AU  
PLANCHER PREEXISTANT ESTERIEUR EN UN POINT D'ATTACHE  
ET REPERER LE BRASANT CORRESPONDANT A L'EMBOU  
COMPARER LES DIMENSIONS DE LA PLANCHE EN BOIS AU  
PLANCHER PREEXISTANT ESTERIEUR EN UN POINT D'ATTACHE  
ET REPERER LE BRASANT CORRESPONDANT A L'EMBOU



NOTE :  
LA CONFIGURATION DES QUATRE (4) PLAQUES POURRAIT CHANGER SELON  
LE CHOIX DES GROUPEES ELECTROGENES ET LE CHOIX DU PLANCHER  
THE FOUR (4) SETS COULD BE CHANGED BY THE COG  
GENERATORS SETS CHOICE

NO	DESCRIPTION	DATE
1	POUR SOUMISSION	2018-04-10
2	POUR SOUMISSION	2018-04-10

HEATH POINTE  
SITE DE TELECOMMUNICATIONS -  
TELECOMMUNICATIONS SITE

ABRI GROUPEES ELECTROGENES -  
PLAQUE D'ENCRAGE EN ACIER /  
SHELTER FOR GENERATORS SETS  
STEEL INTERFACE PLATE

PROJET : 2018-12-18  
PROJET : 2018-12-18  
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PROJET : 2018-12-18  
PROJET : 2018-12-18

CAN PRODUCE DRAWING  
PRODUIT PAR DAO

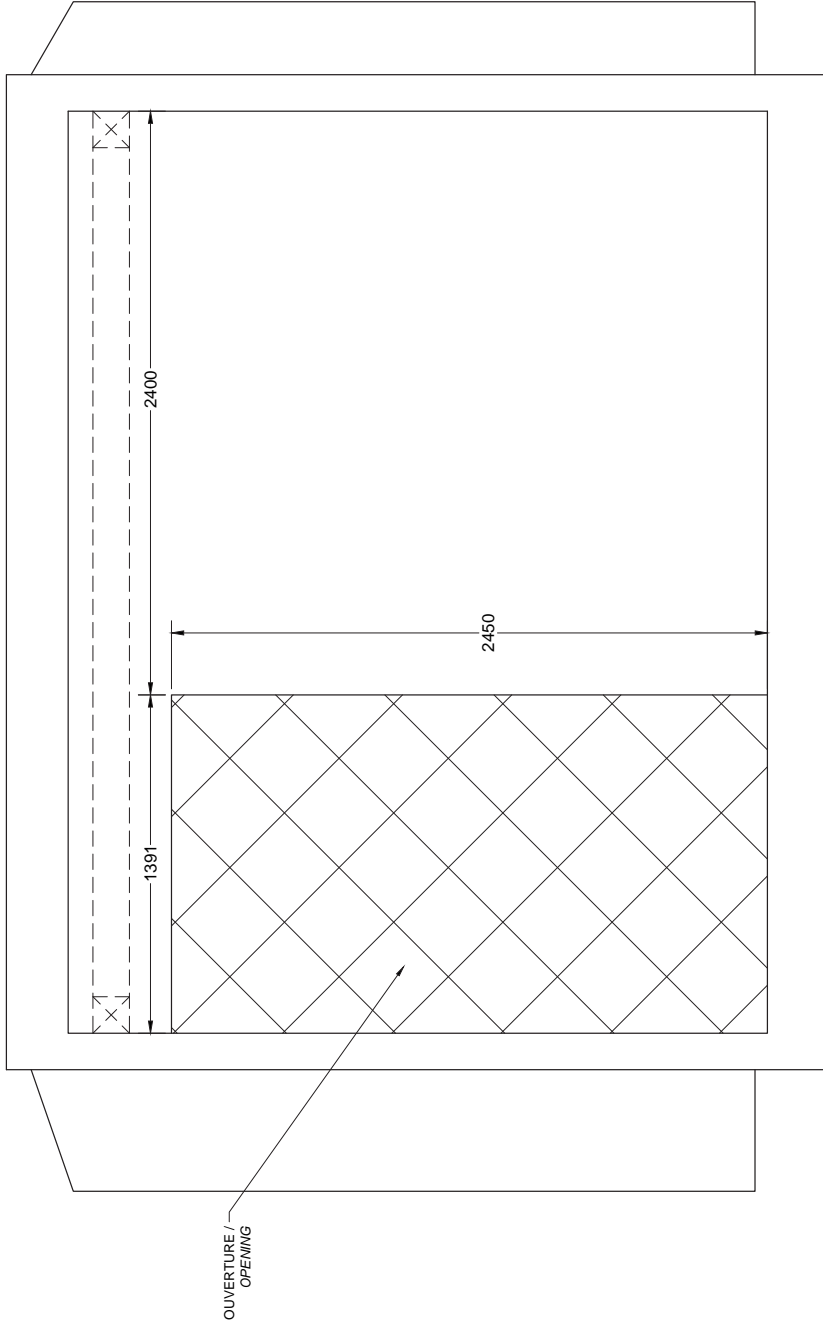
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feet  
0 1 2 3 4 5 6  
meters

REPORT ANY ERRORS OR OMISSIONS TO US IMMEDIATELY  
SIGNALER LES ERREURS OU LES OMISSIONS AU GESTIONNAIRE SUJ



Fences and Gates  
Cercles  
Circulaires  
Cercles  
Cercles

Vendor Information: Board name



COUPE - SECTION

REV	DESCRIPTION	DATE
1	POUR SOUMISSION	2018-04-10

Author: A&P

HEATH POINTE

SITE DE TÉLÉCOMMUNICATIONS -  
TELECOMMUNICATIONS SITE

Drawing: Design

ABRI GROUPES ÉLECTROGÈNES -  
MUR SEPARATEUR / SHELTER FOR  
GENERATORS SETS  
SEPARATION

REVISION	DESCRIPTION	DATE
1	J. DE MONTIGNY	2018-12-18
2	REVISION	
3	GUT	
4	REVISION	

REVISION	DESCRIPTION	DATE
1	REVISION	
2	REVISION	
3	REVISION	
4	REVISION	

REVISION	DESCRIPTION	DATE
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2	REVISION	
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REVISION	DESCRIPTION	DATE
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REVISION	DESCRIPTION	DATE
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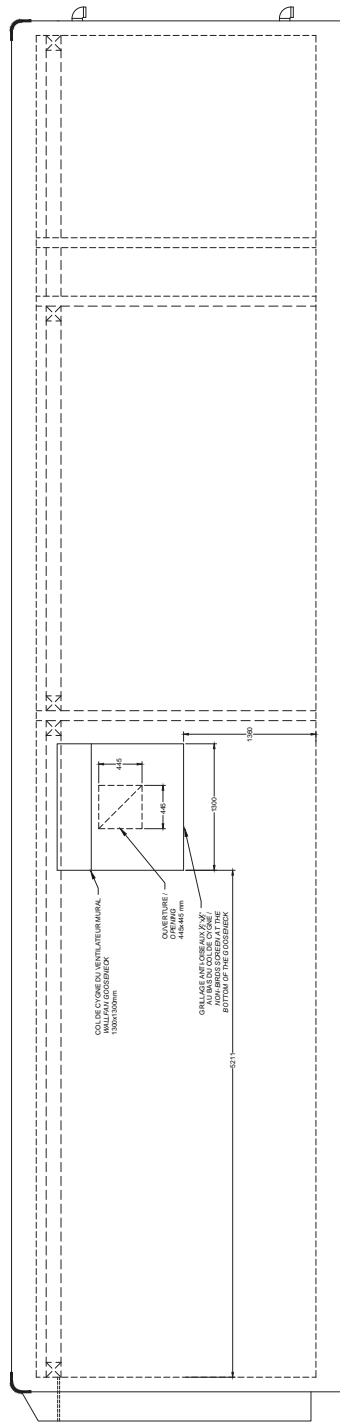
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3	REVISION	
4	REVISION	



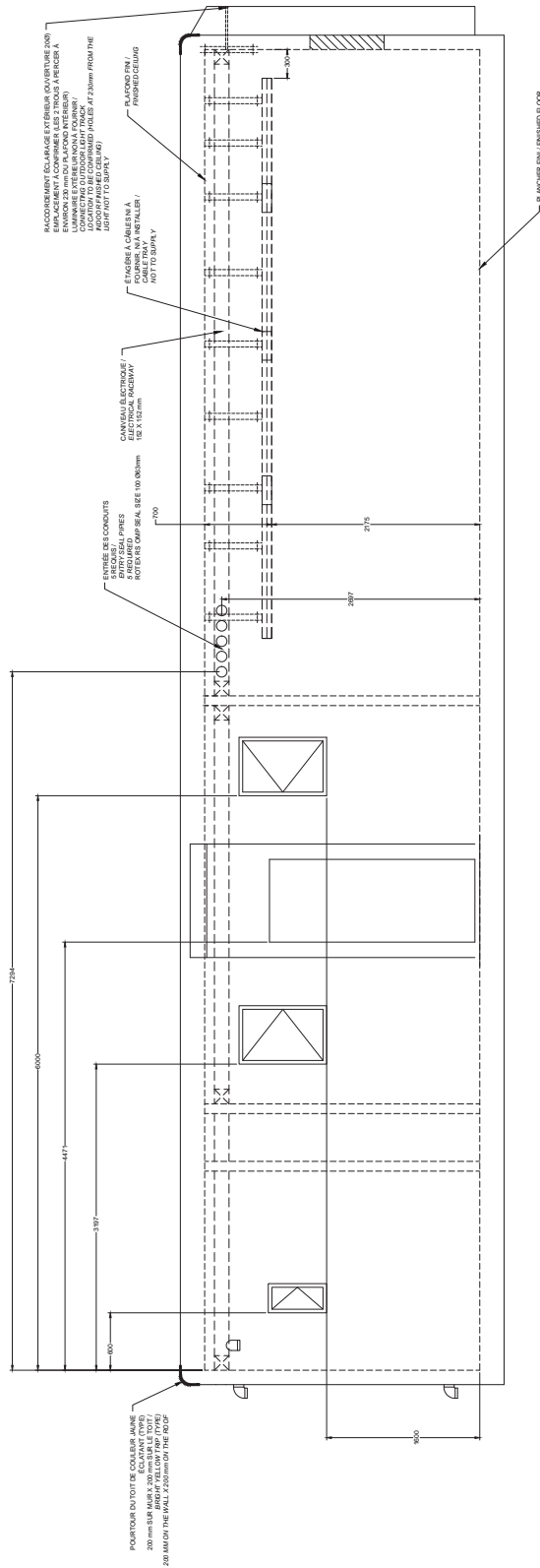








1 VUE ÉLEVATION ARRIÈRE / REAR ELEVATION VIEW  
ÉCHELLE / SCALE : 1:25



2 VUE ÉLÉVATION AVANT / FRONT ELEVATION VIEW







