PURCHASING SECTION
13450 – 104 Avenue, Surrey BC V3T 1V8
Tel: 604-590-7274
E-mail: purchasing@surrey.ca

ADDENDUM #1

REQUEST FOR QUOTATIONS (RFQ) NO.:	**1220-040-2018-094**
TITLE:	**SHANNON HALL RE-ROOFING**
ADDENDUM ISSUE DATE:	**October 26, 2018**
CLOSING DATE:	**prefer to receive Quotations on or before:**
	November 7, 2018

INFORMATION FOR CONTRACTORS

This Addendum is issued to provide additional information to the RFQ for the above named project, to the extent referenced and shall become a part thereof. No consideration will be allowed for extras due to the Contractor not being familiar with this Addendum. This Addendum No. 1 contains 40 pages in total.

CLARIFICATIONS/ ADDITIONS:

1) Contractors to include the removal and replacement of the fascia boards as part of the base Quotation Price.

2) The following hazmat report "Pre-Renovation Building Materials Investigation, Shannon Hall – 6050 176th Street, Surrey, BC" dated October 23, 2018 by SURE Hazmat and Testing is hereby added to the RFQ and will form part of the Contract. Refer to Attachment #1 for details.

QUESTIONS AND ANSWERS:

Q1: Could you please confirm that this project is only open to RCABC members? Our company possesses all of the requirements with the exception of a 5 or 10 year RCABC guarantee.

A1: The City will require either a 5 year or 10 year RCABC guarantee for this project.

Q2: We would like to formally submit our application as an approved manufacturer offering equivalent products to those specified within division 7 of the above noted project. I've attached our formal request letter and product data sheets for review.

A2: Approved. Refer to Attachment #2 for details.

Q3: In the specifications, Section 1.5.3.4 states that we are to provide protection for areas that have exposed ceilings. Can you please provide me with an approximate square foot area that will require protection.

A3: Contractor to confirm square foot area that will require protection. This would only apply to any work done on roof area A, and only directly under any deck replacement areas. All other areas have drywalled ceilings. One note of caution is that the insulation on the underside of the deck may fall as dust, or in pieces, depending on how well it's attached. The Contractor should assess during its first tear off and lay out tarps to catch any debris, as well as report any significant damage to the City and Specifex.

END OF ADDENDUM #1

All Addenda will become part of the RFQ Documents.

ATTACHMENT #1

Hazmat Report: “Pre-Renovation Building Materials Investigation, Shannon Hall – 6050 176th Street, Surrey, BC”

Dated: October 23, 2018

By: SURE Hazmat and Testing

SURE Hazmat and Testing

October 23, 2018

City of Surrey
Planning and Development
6651 148 Street, Surrey, BC
V3S 3C7

Attention – Clayton Welch – Project Coordinator

Reference: Pre-Renovation Building Materials Investigation
Shannon Hall – 6050 176th Street, Surrey, BC

Sure Hazmat and Testing has, in accordance with your request, completed an investigation for hazardous materials and to identify any immediate hazards to workers during the renovation of the building located at 6050 176th Street in Surrey, BC.

The scope of our investigation was based on the client's renovation plans. The scope of the renovation is to remove and replace the roof of the building. Sampling was destructive in nature and included limited demolition to determine the presence of any concealed hazardous materials.

Representative samples of suspect asbestos-containing building materials were collected and analyzed. A total of six (6) samples were collected and analyzed for the presence of asbestos fibres. Two (2) samples were collected and submitted for analysis of lead content. A visual inspection was conducted of thermostatic controls for the presence of mercury. A visual inspection was conducted for the presence of older light fixtures with suspect PCB-containing ballasts. A visual inspection was performed for evidence of rodent activity and fungal contamination.

Analytical Methodology

Asbestos

Samples were analyzed at the in-house laboratory of Sure Hazmat and Testing in accordance with the NIOSH 9002 PLM Bulk Sampling Analytical Method using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as <1%. A copy of our Asbestos Bulk Results spreadsheet is attached to this report for your information and records. All records should be retained for a period of ten years as required by WorkSafe BC.

All samples will be stored at our laboratory for two months before being disposed of. Should you wish to keep these samples beyond this, please notify us within this period.

Lead-Based Finishes

Suspect leaded paint finishes were submitted to Maxxam Analytics for analysis of lead content. For leaded paint finishes, samples were digested using nitric acid/hydrogen peroxide followed by analysis using Inductively Coupled Plasma Spectroscopy (ICAP) and/or Inductively Coupled Plasma/Mass Spectroscopy (ICPMS).

The federal *Hazardous Products Act* (HPA) under Surface Coating Materials regulation defines leaded paint or lead-based surface coating materials with a total lead concentration of 0.009% or 90 µg/g. This is the current accepted standard by WorkSafe BC for identification of lead-based paint. Paint finishes that contain lead equal to or greater than 90 µg/g are considered to present a risk to pregnant women & children and a risk assessment must be conducted by a qualified person prior to the performance of any work that impacts lead-based paint finishes in work areas with high risk individuals in adjacent occupied areas.

Asbestos-Containing Material Results

Please refer to attached bulk sample results and sample location drawings for specific sample locations.

No asbestos-containing materials were identified in the scope of work.

Non-Asbestos Material Results

The following materials were sampled and determined to be non-asbestos:

- Tar and gravel roofing materials
- Tar paper
- Rooftop metal flashing caulking

Lead-Based Finish Results

Suspect leaded paint finishes were sampled from the renovation area. Table 1 shows the concentration of lead in paint for these samples.

Table 1 – Paint Sample Results

Sample #	Sample Location	Lead Concentration (µg/g)	HPA Standard Level (µg/g)
L01	**Brown Fascia Paint**	**1540**	**90**
L02	**Brown Metal Flashing Paint**	**1610**	**90**

Note: Bold values exceed standard level

The concentration of lead was above the Health Canada & HPA standard level of 90 µg/g for both of the samples collected.

Other Hazardous Materials

No Fungal contamination was observed within the building.

No suspect PCB-containing components were observed or suspected to be present.

No Mercury-vapour fluorescent light tubes were observed in the scope.

No Rodent droppings were observed in the scope.

Silica is one of the most common hazards on a construction site. Cutting, breaking, crushing, drilling, grinding, or blasting concrete or stone releases dust that can expose workers to airborne silica.

Conclusions and Recommendations

Asbestos

No asbestos-containing materials were identified within the scope of work.

The survey was based on the client's renovation scope of work. If the scope of the renovation changes to include any areas or materials not included in this investigation, Sure Hazmat and Testing should be contacted to investigate prior to disturbance.

Lead

Lead based finishes are present in the following locations:

- Metal perimeter flashing paint
- Brown wood fascia paint (observed to be in poor condition)

During demolition safe work procedures should be followed when disturbing lead-based finishes. A Risk Assessment should be conducted on site by a qualified person prior to the start of lead abatement work.

As per the WorkSafe BC publication "Lead-Containing Paints and Coatings Preventing Exposure in the Construction Industry" all lead-containing waste materials must be sampled and analyzed using the standard Toxicity Characteristic Leaching Procedure (TCLP). This procedure is designed to determine the leachability of lead in liquid and solid wastes.

Silica and Nuisance Dusts

Control measures must be implemented on all job sites where demolition or renovation activities are taking place. An exposure control plan (ECP) must be developed to reduce the risk of silica and nuisance dust exposure for workers. Engineering controls must be applied to avoid or modify operations which have the potential to generate significant quantities of hazardous dusts. Controlled work practices such as the use of water and ventilation equipment serve to reduce the amount of respirable dust in the work environment. Personal protective equipment such as respiratory protection provide protection for workers on the site.

Limitations

This report is intended for the exclusive use of the client to determine the likely locations of hazardous materials prior to planned renovations. This report is compliant with WorkSafeBC section 20.112 for the scope of the renovation only. For a full building demolition additional inspection(s) and destructive sampling is required. **This report is not a Specification or Scope of Work and the use of this document as such will be at the sole risk of the user.**

The contents of this report were based on a site visit conducted by Sure Hazmat and Testing personnel. Please note that some asbestos products may not have been accessible on the day of our survey and may remain unidentified. Asbestos products are sometimes used behind wall partitions, on mechanical systems located in pipe chases, in sub-floors or other concealed areas, and assumptions have been made as to the likely contents of those areas. Should a suspect material be encountered, all work must be stopped and Sure Hazmat will investigate immediately.

If further clarification is required, please contact our office. Thank you for having Sure Hazmat and Testing perform this work for you.

Prepared by:

Ryan Verhelst, B.Sc, *Project Manager*
Sure Hazmat and Testing

Reviewed by:

John Shaw, *Principal*
Sure Hazmat and Testing

Encl. Laboratory Bulk Report
Maxxam Analytics Lab Report
Sample Location Drawings
Site Photographs

Ref: 13671-R01

Photo # 1 – Lead based metal flashing paint and wood fascia paint

101-4268 Lozells Avenue
Burnaby, B.C.
Tel: 604.444.0204

SURE Hazmat and Testing

Bulk Asbestos Results

Client: 13671 - City of Surrey

Sampled By/ Date: R.Verhelst - October 12, 2018

Reference: Shannon Hall, Surrey, BC

Sample #	Date Analyzed	Analyst	Sample Location	Material Type	Other Materials glass, synthetics, cellulose		Asbestos Type & Amount
13671-01	17-Oct-18	IW	Main Roof - East	Tar and Gravel Roofing	Non-Fibrous 95%	Other Fibres <5%	Non-Detected
				Tar Paper	Non-Fibrous 40%	Other Fibres <60%	Non-Detected
13671-02	17-Oct-18	IW	South Lower Roof	Tar and Gravel Roofing	Non-Fibrous 95%	Other Fibres <5%	Non-Detected
				Tar Paper	Non-Fibrous 40%	Other Fibres <60%	Non-Detected
13671-03	17-Oct-18	IW	Upper Roof - East	Tar and Gravel Roofing	Non-Fibrous 95%	Other Fibres <5%	Non-Detected
				Tar Paper	Non-Fibrous 40%	Other Fibres <60%	Non-Detected
13671-04	17-Oct-18	IW	South Lower Roof	Caulking	Non-Fibrous 95%	Other Fibres <5%	Non-Detected
			Between Metal Flashing and Brick				
13671-05	17-Oct-18	IW	Perimeter Flashing - Main Roof	Caulking	Non-Fibrous 95%	Other Fibres <5%	Non-Detected
			South				
13671-06	17-Oct-18	IW	Perimeter Flashing - Upper Roof	Caulking	Non-Fibrous 95%	Other Fibres <5%	Non-Detected

AIHA Proficiency Analytical Testing Programs, LLC Lab #193144

*Samples analyzed in accordance with NIOSH 9002 PLM Bulk Sampling Method

Sure Hazmat and Testing is an active participant of the American Industrial Hygiene Association (AIHA) Bulk Asbestos Proficiency Analytical Testing (BAPAT)

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: CITY OF SURREY
Site Location: SHANNON HALL
Your C.O.C. #: 566334-87-01

Attention: Ryan Verhelst

Sure Hazmat & Testing
101-4268 Lozells Avenue
BURNABY, BC
CANADA V5A 0C6

Report Date: 2018/10/18
Report #: R2636594
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B890424
Received: 2018/10/16, 16:07

Sample Matrix: PAINT
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICP-AES (acid extr. solid)	2	2018/10/17	2018/10/17	BBY7SOP-00018	EPA 6010c R3 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

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Success Through Science®

Your Project #: CITY OF SURREY
Site Location: SHANNON HALL
Your C.O.C. #: 566334-87-01

Attention: Ryan Verhelst

Sure Hazmat & Testing
101-4268 Lozells Avenue
BURNABY, BC
CANADA V5A 0C6

Report Date: 2018/10/18
Report #: R2636594
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B890424
Received: 2018/10/16, 16:07

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Nahed Amer, Project Manager
Email: NAmer@maxxam.ca
Phone# (604) 734 7276
==========
This report has been generated and distributed using a secure automated process.
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B890424
Report Date: 2018/10/18

Sure Hazmat & Testing
Client Project #: CITY OF SURREY
Site Location: SHANNON HALL
Sampler Initials: RV

ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		UO3593	UO3594		
Sampling Date		2018/10/12	2018/10/12		
COC Number		566334-87-01	566334-87-01		
	UNITS	**L01-BROWN FACSIA PAINT**	**L02-BROWN FLASHING PAINT**	**RDL**	**QC Batch**
Total Metals by ICP					
Total Lead (Pb)	mg/kg	1540	1610	2.0	9187663
RDL = Reportable Detection Limit					

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Maxxam Job #: B890424
Report Date: 2018/10/18

Sure Hazmat & Testing
Client Project #: CITY OF SURREY
Site Location: SHANNON HALL
Sampler Initials: RV

GENERAL COMMENTS

Results relate only to the items tested.

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Maxxam Job #: B890424
Report Date: 2018/10/18

QUALITY ASSURANCE REPORT

Sure Hazmat & Testing
Client Project #: CITY OF SURREY
Site Location: SHANNON HALL
Sampler Initials: RV

			Method Blank		RPD		QC Standard	
QC Batch	**Parameter**	**Date**	**Value**	**UNITS**	**Value (%)**	**QC Limits**	**% Recovery**	**QC Limits**
9187663	Total Lead (Pb)	2018/10/17	<2.0	mg/kg	97 (1)	40	105	70 - 130

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Analytics International Corporation o/a Maxxam Analytics
4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel:(604) 734 7276 Toll-free 800-563-6266 Fax (604) 731 2386 www.maxxam.ca

B890424_COC

Page of

Only

Bottle Order #: 566334

Project Manager: Nahed Amer

C#566334-87-01

INVOICE TO:		Report Information		Project Information	
Company Name	#4212 Sure Hazmat & Testing	Company Name		Quotation #	B80847
Contact Name	Karen Smith	Contact Name	Ryan Verhelst	P.O. #	
Address	101-4268 Lozells Avenue BURNABY BC V5A 0C6	Address		Project #	
				Project Name	City of Surrey
Phone	(604) 444-0204 Fax: (604) 420-9559	Phone	Fax:	Site #	SHANNON Hall
Email	ksmith@surehazmat.com	Email	RVERHELST@SURE.HAZMAT.com	Sampled By	RV

Regulatory Criteria:
- [ ] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other _____

Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [ ]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) [ ]
1 DAY [ ] 2 Day [ ] 3 Day [X] Date Required: _____
Rush Confirmation Number: _____ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	LEAD IN PAINT	Lead (in Glazing/Tile/Other Solid)	TCLP Lead Leachate	Lead in SWAB	LEAD IN AIR	Respirable Silica in Air by XRD (NIOSH 7500)					# of Bottles	Comments
1	L01 - BROWN	FACSIA PAINT	OCT. 12				X											
2	L02 - BROWN	FLASHING PAINT	↓				X											
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Ryan VERHELST	18/10/16	16:15	PEDRO TACK	2018/10/16	16:15		[ ]	N/A	N/A [ ] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

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White: Maxxam Yellow: Client

1169

Maxxam Analytics International Corporation o/a Maxxam Analytics

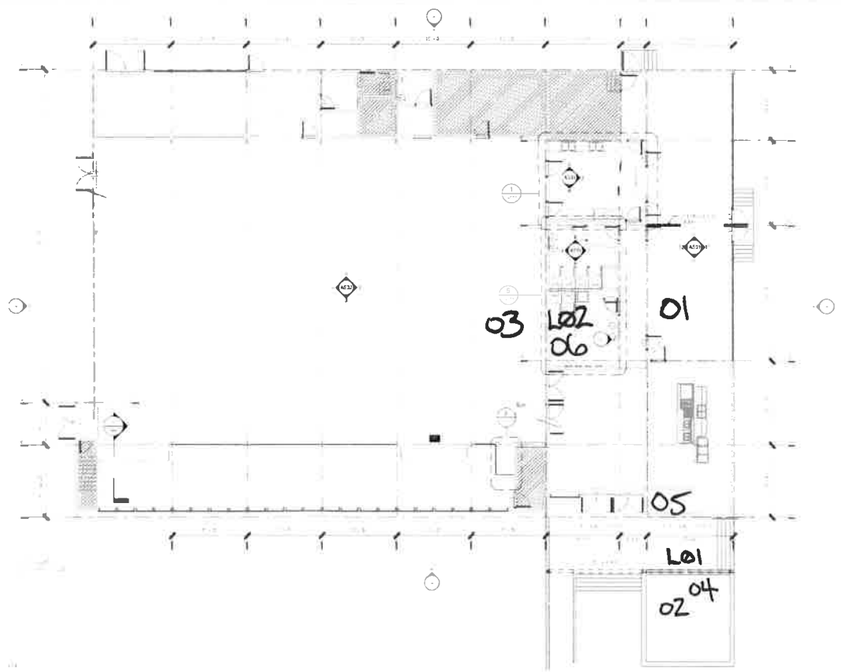
Room Schedule

Number	Name	Area	Ceiling Finish	Wall Finish	Floor Finish	Comments
100	[illegible]	[illegible]	P1	P1	VSF1	[illegible]
110	[illegible]	[illegible]	SL	P2-B	EXB1	[illegible]
111	[illegible]	[illegible]	P1	P2	VSF1	[illegible]
112	[illegible]	[illegible]	P1	P2	EXB1	[illegible]
113	[illegible]	[illegible]	P1	P1	VSF1	[illegible]
114	[illegible]	[illegible]	P1	P2	VSF1	[illegible]
115	[illegible]	[illegible]	P1	P1	VSF1	[illegible]
116	[illegible]	[illegible]	P1	P1	VSF1	[illegible]
140	[illegible]	[illegible]	P1	P1	VSF1	[illegible]
150	[illegible]	[illegible]	P1	[illegible]	EXB1	[illegible]
160	[illegible]	[illegible]	P1	P1	VSF1	[illegible]
170	[illegible]	[illegible]	P1	P2	VSF1	[illegible]
180	[illegible]	[illegible]	P1	P1	VSF1	[illegible]
190	[illegible]	[illegible]	P1	P1	VSF1	[illegible]

Door Schedule

Mark	Comments	Function	Height	Width	Door Finish	Frame Finish	Hardware Group
101	Existing	Exterior	7' - 0"	4' - 0"	P4	P4	
102	Existing	Exterior	7' - 0"	5' - 8"	P4	P4	
103	Existing	Interior	7' - 0"	5' - 0"	P4	P4	
104	Existing	Interior	7' - 0"	3' - 0"	P4	P4	
113	Existing	Interior	7' - 6"	2' - 8"	P4	P4	
113A	Existing	Interior	7' - 0"	3' - 8"	P4	P4	Group 2
113B	Existing	Exterior	7' - 0"	5' - 8"	P4	P4	Group 2
114	Existing	Interior	8' - 0"	2' - 10"	P4	P4	Group 1
114A	Existing	Interior	8' - 0"	2' - 10"	P4	P4	Group 1
115	Existing	Exterior	8' - 0"	7' - 10"	P4	P4	Group 2
116	Existing	Interior	7' - 0"	3' - 0"	P4	P4	
116A	Existing	Interior	7' - 0"	2' - 8"	P4	P4	
116B	Existing	Interior	7' - 0"	3' - 0"	P4	P4	Group 1
116C	Existing	Interior	7' - 0"	3' - 0"	P4	P4	
135	Existing	Interior	7' - 0"	3' - 0"	P4	P4	
136	Existing	Interior	7' - 0"	3' - 0"	P4	P4	
138	Existing	Exterior	7' - 0"	3' - 8"	P4	P4	
140	New Door	Interior	7' - 0"	2' - 8"	P4	P4	Group 1
141	Existing	Interior	7' - 0"	2' - 8"	P4	P4	Group 1
142	Existing	Interior	7' - 0"	3' - 0"	P4	P4	
143	Existing	Interior	7' - 0"	3' - 0"	P4	P4	
150	Existing	Interior	7' - 0"	2' - 8"	P4	P4	Group 1
151	Existing	Interior	7' - 0"	2' - 8"	P4	P4	Group 1
152	Existing	Interior	7' - 0"	2' - 8"	P4	P4	Group 1
153	Existing	Interior	7' - 0"	2' - 8"	P4	P4	Group 1
154	Existing	Interior	7' - 0"	2' - 8"	P4	P4	Group 1
155	Existing	Interior	7' - 0"	3' - 0"	P1	P1	
156	Existing	Interior	7' - 0"	3' - 0"	P1	P1	
170	Existing	Interior	7' - 0"	2' - 8"	P4	P4	
171	Existing	Interior	7' - 0"	2' - 8"	P4	P4	
180	Existing	Interior	7' - 0"	2' - 8"	P4	P4	
181	Existing	Interior	7' - 0"	2' - 8"	P4	P4	Group 1

HARDWARE GROUPS



GENERAL NOTES

DRAWING LEGEND

CONSULTANT LIST:

SYMBOL LEGEND

TAYLORKURTZ

ATTACHMENT #2

APPROVED EQUIVALENT PRODUCTS

October 23rd, 2018

Specifex Building Science Inc.
2282 232 Street
Langley, BC
Attn: Sean Lang

RE: Request for Equivalent – Re-roofing of Shannon Hall, BC

Dear Mr. Lang:

We have reviewed the above captioned project tender specification, specifically sections in division 7 listed below and respectfully request that IKO Industries Ltd be considered an acceptable manufacturer offering equivalent products to the specified manufacturer-Soprema.

IKO Industries Ltd www.iko.com is a Canadian-based, vertically integrated company that manufactures a full product-line of compatible roofing assembly system components and offers a single-source warranty.

Our equivalent products are indicated below. Listed in sequence to the specification is a side-by-side comparison chart and the attached technical data sheets are included for your reference.

We trust the information is satisfactory and look forward to your response.

Regards,

Sara Hagos
Architectural Representative – British Columbia
IKO Industries Ltd.|87 Orenda Road, Brampton, ON L6W 1V7
C 604.355.3531
IKO.COM/COMM

October 23rd, 2018

Specifex Building Science Inc.

RE: Request for Equivalent – Re-roofing of Shannon Hall, BC

Item	Description	Specified material	IKO Equal / Alternate
1.3.1.1	Base Sheet Membrane	Soprema Colvent 830 Base	IKO Armourvent
1.3.1.2	Cap Sheet Membrane	Soprema Colvent 860 Cap	Torchflex TP-HD-Cap
1.3.1.3	Base Sheet Membrane Flashing	Soprema Sopralene Flam 180	IKO Torchflex TP-180-FF
1.3.1.4	Base Sheet Membrane Flashing	Soprema Sopralene Flam Stick	IKO Armourbond Flash HD
1.3.2.2	Cover Board	Soprema 4.8mm Sopraboard	IKO Protectoboard
1.3.3.1 1.3.3.2	Insulation	Soprema Sopra-iso Plus	IKO Therm III
1.3.4.1	Vapour Barrier	Soprema Sopravap'r	IKO M.V.P
1.3.5.1	Primers	Soprema Elastocol 500	IKO Mod-Bit Primer
1.3.5.2	Primers	Soprema Elastocol Stick	IKO SAM Adhesive
1.3.5.3	Adhesives	Soprema Sopramastic	IKO AquaBarrier Mastic
1.3.6.1	Liquid Flashing	Alsan RS230 Flash	Siplast Parapro 123 Flashing
1.3.6.2	Liquid Flashing	Alsan Fleece	Siplast Pro Fleece
1.3.6.3	Liquid Flashing	Alsan Liquid Flashing	IKO MS Detail

TECHNICAL DATA SHEET - RCABC

ISO 9001 - 2008
REGISTERED
FACILITY

STOCK NO. 7750093 **JULY, 2016**

TORCHFLEX HD-FF-BASE

Torchflex HD-FF-Base is constructed using a mat of durable non-woven composite polyester mat which has been strengthened with a glass fiber scrim in both machine and cross directions. The mat is fully permeated with asphalt then heavily coated with our select polymer blend of SBS. Both surfaces are covered with a thin poly-film. The top film will melt during the application of the heat welded cap sheet while the bottom film dissolves during heat welding to the substrate. Torchflex HD-FF-Base can be used as the "lay-flat" base sheet in a layered membrane construction system. This product will easily satisfy the requirements of CGSB-37.56-M and ASTM D6162 Type I, Grade S materials. IKO's roofing products are produced and designed with consideration for environmental responsibility and sustainability, incorporating quality recycled components whenever possible, manufactured in facilities that comply with the most stringent government environmental regulations, and can therefore be a part of any "green" construction project.

CHARACTERISTIC	UNITS	NOMINAL VALUE	SPECIFICATION	TEST METHOD**	STANDARD LIMITS
ROLLS PER PALLET:	-	32	-	-	N/A
PALLET SIZE:	cm (in)	132 x 112 52 x 44	-	-	-
LENGTH:	m (ft)	10 (32.8)	-	-	± 1%
WIDTH:	mm (in)	1005 (39.6)	-	-	± 6 (1/4)
WEIGHT:	kgs (lbs)	36 (79.4)	-	-	-
THICKNESS:	mm (mils)	3.0 (118)	-	-	± 0.4 (16)
LINES:	mm (in)	90 (3.5) 505 (19.9)	-	-	± 5 (1/4)
COLD FLEX:	°C (°F)	PASS	ASTM D6162	ASTM D5147	MIN: -18 (0)
STRAIN ENERGY @ 23°C **MD:** **XD:**	kN/m	7.3 6.6	CGSB-37.56-M	CGSB-37.56-M	MIN: 5.5*
TENSILE STRENGTH **MD:** **XD:**	kN/m	20.4 15.6	ASTM D6162	ASTM D5147	MIN: 13.1
ULTIMATE ELONGATION **MD:** **XD:**	%	76.3 83.4	ASTM D6162	ASTM D5147	MIN: 26
TEAR STRENGTH **MD:** **XD:**	N	71 69	CGSB-37.56-M	CGSB-37.56-M	MIN: 20*
LAP STRENGTH (5D @ 23°C)	kN/m	12	CGSB-37.56-M	CGSB-37.56-M	MIN: 4*
STATIC PUNCTURE:	N	PASS	CGSB-37.56-M	CGSB-37.56-M	≥ 150*

* CGSB-37.56-M revision, 9th draft, dated January 1997.
** Although both ASTM and CGSB may have requirements for a particular test, only the more stringent is indicated.

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TECHNICAL DATA SHEET - RCABC

ISO 9001 - 2008
REGISTERED
FACILITY

STOCK NO. 7750090 **JULY, 2016**

TORCHFLEX TP-180-FF-BASE

Torchflex TP-180-FF-Base is constructed using a reinforcing mat of durable non-woven polyester, which is coated and impregnated with SBS modified bitumen. Both surfaces are covered with a thin poly-film. The top film will melt during the application of the heat welded cap sheet while the bottom film dissolves during heat welding to the substrate. Torchflex TP-180-FF-Base can be used as the "lay-flat" base sheet in a layered membrane construction system. This product will easily satisfy the requirements of CGSB-37.56-M for Class P, Type 2, and Grade 2 materials as well as the requirements of ASTM D6164 for Type I, Grade S materials. IKO's products are produced and designed with consideration for environmental responsibility and sustainability, incorporating quality recycled components whenever possible, manufactured in facilities that comply with the most stringent government environmental regulations, and can therefore be a part of any "green" construction project.

CHARACTERISTIC	UNITS	NOMINAL VALUE	SPECIFICATION	TEST METHOD**	STANDARD LIMITS
ROLLS PER PALLET:	-	32	-	-	N/A
PALLET SIZE:	cm (in)	132 x 112 52 x 44	-	-	-
LENGTH:	m (ft)	10 (32.8)	-	-	± 1%
WIDTH:	mm (in)	1005 (39.6)	-	-	± 6 (1/4)
WEIGHT:	kgs (lbs)	36 (79.4)	-	-	-
AREA:	m^2 (ft^2)	10 (108)	-	-	-
THICKNESS:	mm (mils)	3.0 (118)	-	-	± 0.4 (16)
LINES:	mm (in)	90 (3.5) 505 (19.9)	-	-	± 5 (1/4)
COLD FLEX:	°C (°F)	-30 (-22)	ASTM D6164	ASTM D5147	MIN: -18 (0)
STRAIN ENERGY @ 23°C MD: XD:	kN/m	8.1 8.8	CGSB-37.56-M	CGSB-37.56-M	MIN: 5.5*
TENSILE STRENGTH MD: XD:	kN/m (lbf/in)	16 (91) 13 (74)	ASTM D6164	ASTM D5147	MIN: 8.8 (50)
ULTIMATE ELONGATION (MD/XD):	%	60 / 70	ASTM D6164	ASTM D5147	MIN: 35
TEAR STRENGTH MD: XD:	N (lbf)	74 (17) 81 (18)	CGSB-37.56-M	CGSB-37.56-M	MIN: 20 (4.5)*
TENSILE-TEAR MD: XD:	N (lbf)	511 (115) 377 (85)	ASTM D6164	ASTM D5147	MIN: 246 (55)
LAP STRENGTH (5D@23°C) MD: XD:	kN/m (lbf/in)	23 (131) 23 (131)	CGSB-37.56-M	CGSB-37.56-M	MIN: 4 (23)*
STATIC PUNCTURE:	N (lbf)	≥ 300 (67)	CGSB-37.56-M	CGSB-37.56-M	> 150 (34)*

* CGSB-37.56-M revision, 9th draft, dated January 1997.
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TECHNICAL DATA SHEET - RCABC

ISO 9001 - 2008
REGISTERED
FACILITY

STOCK NO. 7920012 **JULY 2016**

ARMOURBOND HD FLASH

This product consists of durable, reinforcing mat of non-woven reinforced composite polyester that has been coated and permeated with Modiflex SBS bitumen to a thickness of approximately 2.5 mm (98 mils). A poly-film covers the top surface. The back surfacing is a silicone treated film which is easily removed. The product can then be placed in flame-sensitive areas for flashing details as it is self-adhesive. This product will easily satisfy the requirements of CGSB-37.56-M and ASTM D6162 Type I, Grade S. IKO's products are produced and designed with consideration for environmental responsibility and sustainability, incorporating quality recycled components whenever possible, manufactured in facilities that comply with the most stringent government environmental regulations, and can therefore be a part of any "green" construction project.

CHARACTERISTIC		UNITS	NOMINAL VALUE	SPECIFICATION	TEST METHOD**	STANDARD LIMITS
ROLLS PER PALLET:		-	32	-	-	N/A
PALLET SIZE:		cm (in)	132 x 112 (52 x 44)	-	-	-
LENGTH:		m (ft)	15 (49)	-	-	± 1%
WIDTH:		mm (in)	1005 (39.6)	-	-	± 3 (1/8)
WEIGHT:		kgs (lbs)	40.4 (89)	-	-	-
THICKNESS:		mm (mils)	2.5 (98)	-	-	± 0.4 (16)
LINES:		mm (in)	90 (3.5) 500 (19.7)	-	-	± 5 (1/4)
COLD FLEX:		°C (°F)	PASS	ASTM D6162	ASTM D5147	MIN: -18 (0)
STRAIN ENERGY @23°C	**MD:** **XD:**	kN/m	7.3 6.6	CGSB-37.56-M	CGSB-37.56-M	MIN: 5.5*
TENSILE STRENGTH	**MD:** **XD:**	kN/m	20.4 15.6	ASTM D6162	ASTM D5147	MIN: 13.1
ULTIMATE ELONGATION	**MD:** **XD:**	%	76.3 83.4	ASTM D6162	ASTM D5147	MIN: 26
TEAR STRENGTH	**MD:** **XD:**	N	71 69	CGSB-37.56-M	CGSB-37.56-M	MIN: 20*
STATIC PUNCTURE:		N	PASS	CGSB-37.56-M	CGSB-37.56-M	≥ 150*

* CGSB-37.56-M revision, 9th draft, dated January, 1997.
** Although both ASTM and CGSB may have requirements for a particular test, only the more stringent is indicated.

See also Material Information Sheet – MIS # 1224 Brampton and 1724 Sumas

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TECHNICAL DATA SHEET - RCABC

ISO 9001 - 2008
REGISTERED
FACILITY

STOCK NO. 41801XX **JULY, 2016**

IKOTHERM III

IKOTherm III is a rigid, polyisocyanurate foam insulation with high thermal properties. It is constructed from closed cell polyisocyanurate foam core bonded on each side to coated glass fiber facers during the manufacturing process. IKOTherm III polyisocyanurate foam insulation is ideally suited for hot and cold applied Mod-Bit roofing systems and BUR roofing systems. IKOTherm III polyisocyanurate foam insulation is dimensionally stable and can be sized with ease. It is also lightweight and easy to handle. It has a high thermal R-value that provides outstanding insulation protection, which helps to reduce heating and cooling costs. IKOTherm III polyisocyanurate foam insulation is available in board sizes of 1220 mm x 2440 mm (4' x 8'), or 1220 mm x 1220 mm (4' x 4'), and in a wide range of thicknesses. IKOTherm III polyisocyanurate foam insulation is produced according to the requirements of CAN/ULC S-704 for Type 2, Class 3 materials, and ASTM C1289 Type II, Class 2, Grade 2. IKO's roofing products are produced and designed with consideration for environmental responsibility and sustainability, incorporating quality recycled components whenever possible, manufactured in facilities that comply with the most stringent government environmental regulations, and can therefore be a part of any "green" construction project.

CHARACTERISTIC	UNITS	TYPICAL VALUE	SPECIFICATION	TEST METHOD	STANDARD LIMITS
LENGTH TOLERANCE:	mm (in)	± 4 (± 0.16)	CAN/ULC-S704	ASTM C303	+ 6 (+ 0.25) - 4 (- 0.16)
WIDTH TOLERANCE:	mm (in)	± 2 (± 0.08)	CAN/ULC-S704	ASTM C303	+ 4 (+ 0.16) - 2 (- 0.08)
DIMENSIONAL STABILITY(MD/XD) **AT -29°C:** **AT 80°C:** **AT 70°C, 97% R.H.:**	 % % %	 -0.02/-0.03 -0.02/-0.17 0.30/0.80	CAN/ULC-S704	ASTM D2126	 max: ± 2 max: ± 2 max: ± 2
WATER VAPOUR PERMEANCE:	ng/Pa•s•m²	68	CAN/ULC-S704	ASTM E96	>60
WATER ABSORPTION:	% by Vol.	1.6	CAN/ULC-S704	ASTM D2842	max: 3.5
COMPRESSIVE STRENGTH*:	kPa (psi)	145 (21)	CAN/ULC-S704	ASTM D1621	min: 140 (20)
FLEXURAL STRENGTH MD: **XD:**	kPa (psi)	607 (88.5) 479 (69.8)	CAN/ULC-S704	ASTM C203	min: 275 (39.3)
LONG TERM THERMAL RESISTANCE (LTTR): **THICKNESS: 15.9 mm (0.625 in)** **25 mm (1 in)** **50 mm (2 in)** **75 mm (3 in)** **100 mm (4 in)**	m^2•K/W (Btu•hr•ft^{2}•°F)	0.62 (3.5) 0.99 (5.6) 2.01 (11.4) 3.06 (17.4) 4.16 (23.6)	CAN/ULC-S704	CAN/ULC-S770	-

***** Tested on cured sample, using chord modulus at 10% deformation.
172 kpa (25 psi) product available by special request, which would conform to ASTM C1289 Grade 3 requirements
Note: LTTR values shown are for "metric" thicknesses, and will vary slightly from 1", 2", 3" and 4" values.

See also Material Safety Data Sheet – MSDS #1511 or MSDS #1911.

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TECHNICAL DATA SHEET - RCABC

ISO 9001 - 2008
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FACILITY

STOCK NO. 7940002 ***AUGUST, 2016***

IKO MVP (MODIFIED VAPOUR PROTECTOR)

IKO MVP is a self-adhering membrane used over various types of roof decks such as steel, concrete or wood. This vapour retardant is composed of modified SBS asphalt with a top surface of high density cross laminated polyethylene film. This product is designed as a vapour retardant before the installation of the roof insulation. IKO MVP should not be applied at temperatures below -10°C. IKO's products are produced and designed with consideration for environmental responsibility and sustainability, incorporating quality recycled components whenever possible, manufactured in facilities that comply with the most stringent government environmental regulations, and can therefore be a part of any "green" construction project.

CHARACTERISTIC		UNIT	NOMINAL VALUE	TEST METHOD	STANDARD LIMIT
ROLLS PER PALLET:		-	20	-	N/A
PALLET SIZE:		cm (in)	132 x 112 (52 x 44)	-	-
LENGTH:		m (ft)	32 (105)	-	± 1%
WIDTH:		mm (in)	1000 (39.4)	-	± 3 (1/8)
AREA:		m^2 (ft^2)	32 (344.5)	-	-
THICKNESS:		mm (mils)	1.2 (47.3)	-	± 5%
WEIGHT:		kgs (lbs)	38.9 (85.8)	-	-
SELVAGE:		mm (in)	76 (3)		± 6 (1/4)
COLD FLEX:		°C (°F)	-30(-22)	ASTM D5147	MIN: -18 (0)
WATER VAPOUR TRANSMISSON:		ng/Pa·s·m^2	<1.5	ASTM E96-B	-
TENSILE STRENGTH	**MD:** **XD:**	kN/m (lbf/in)	10 (58) 7.7 (44)	ASTM D5147	MIN: 8.78 (50) 3.5 (20)
ULTIMATE ELONGATION	**MD:** **XD:**	%	3 4	ASTM D5147	MIN: 3

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Protectoboard™ 4.8 mm (3/16")

COMMERCIAL
ROOF COVER BOARD

STOCK# **0910013**

BOARDS PER PALLET: **120**

PALLET SIZE: **122 cm x 152 cm (4 ft x 5 ft)**

LENGTH: **152 cm (5 ft)**

WIDTH: **122 cm (4 ft)**

THICKNESS: **4.8 mm (3/16 in)**

WEIGHT: **14.6 kg (32.2 lb)**

Note: All reported values are nominal.

IKO® COMMERCIAL

Used in either roofing or waterproofing applications, let IKO Protectoboard Cover Board go to work for your next commercial construction project.

Protectoboard™ 4.8 mm (3/16")

COMMERCIAL ROOF COVER BOARD

High Strength

Protectoboard 4.8 mm (3/16") is composed of a mineral-fortified asphaltic core between two layers of high-strength reinforcing glass fiber mat.

Versatile Roofing Applications

Protectoboard can be used as an overlay board in any conventional roof system, either in an inverted roofing assembly or as the new substrate for modified bitumen or four-ply asphalt and felt application.

Other Uses

Protectoboard also can be applied as a protection board in the waterproofing of bridge and podium decks, vertical walls and parking garages.

- OUTSTANDING STRENGTH
- MOISTURE RESISTANT

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Protectoboard™ 4.8 mm (3/16")

COMMERCIAL ROOF COVER BOARD

IKO® COMMERCIAL

ISO 9001 – 2008 REGISTERED FACILITY

Please contact your IKO Technical Representative for specific slope requirements.

CHARACTERISTICS	UNITS	MEETS/ EXCEEDS	TEST METHOD	STANDARD LIMITS
Thickness:	mm (in)	4.8 (3/16)	–	± 10%
Moisture Content:	%	✓	ASTM D146	MAX: 5
Moisture Absorption:	%	✓	DSM #9.90.60	MAX: 5
Dimensional Stability:	%	✓	ASTM D1204	MAX: 1.0

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0910008-046-013-014-024
February 2017

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AquaBarrier™ Mastic

DETAIL MASTIC

STOCK# **1850094, 1850095, 1850097**

PALLET SIZE: **122 cm x 102 cm (48 x 40 in)**

PACKAGING: **300 ml Tube - 24/box**

825 ml Tube - 12/box

10 kg Pail - 1 pail

BOXES PER PALLET:

300 ml Tube - 48 (1152 tubes)

825 ml Tube - 50 (600 tubes)

10 kg Pail - 48 pails

COLOUR: **Black**

SETTING TIME: **24 Hours**

Note: All reported values are nominal.

- DEPENDABLE
- MULTI-PURPOSE

IKO® COMMERCIAL

Strong, versatile and for all seasons, let IKO Aquabarrier Mastic go to work for your next commercial building project.

AquaBarrier™ Mastic

DETAIL MASTIC

Extra Strong

IKO AquaBarrier Mastic is a unique, modified asphalt sealant that is formulated with synthetic rubbers for longevity and glass fibers for extra strength.

Widely Compatible

IKO AquaBarrier Mastic sealant is fully compatible with IKO waterproofing, air and vapour barrier and roofing system products. It can be applied on damp or dry surfaces and will not slump or pull away from the substrate.

Multiple Applications

Areas of use include sealing terminations, sealing around penetrations and sealing the membrane's edges. IKO AquaBarrier Mastic sealant also may be used in simple applications to repair loose shingles, flashings, chimneys and vents.

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AquaBarrier™ Mastic

DETAIL MASTIC

IKO® COMMERCIAL

AquaBarrier Mastic meets ASTM D 4586 & D 3409 and also meets Federal SS.C-153C, Type 1 specifications. All local safety rules and precautions should be followed when working with IKO products.

See also Material Safety Data Sheet MSDS #1252.

Good building practices include ensuring the application surface is adequately prepared for the adhesion of the products prior to installation. For further details, please refer to the "IKO Installation Guidelines."

Please contact your IKO Technical Representative for specific slope requirements.

CHARACTERISTICS	UNITS	NOMINAL VALUE
Percent Solids	% wt./wt.	75
Viscosity at 25˚C	Dmm	310
Elongation of Cured Film	%	150
Tensile Strength of Cured Film	Psi	200
Minimum Application Temperature	˚C (˚F)	-10 to 50 (14 to 104)
Service Temperature	˚C (˚F)	-40 to 82 (-40 to 180)

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1850094-1850095-1850097
February 2017

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S.A.M. Adhesive

SELF-ADHERING MEMBRANE ADHESIVE

IKO COMMERCIAL

STOCK# **1850032, 1850034**

SIZE: **17 L pail (4.49 gal), 3.78 L (1 gal)**

PALLET SIZE: **122 cm x 102 cm (48 in x 40 in)**

QUANTITY PER PALLET:

17 L Pail (4.49 gal) - 36

3.78 L Can (1 gal) - 90

COLOUR: **Gold**

COVERAGE: **3 to 6 m²/L**

DRYING TIME: **60 Minutes**

Note: All reported values are nominal.

IKO S.A.M. Adhesive is an outstanding quick drying product for self-adhering membranes. Let S.A.M. Adhesive go to work for your next commercial building project.

- EXCELLENT ADHESION
- VERSATILE

S.A.M. Adhesive

SELF-ADHERING MEMBRANE ADHESIVE

Multi-Use

IKO S.A.M Adhesive is a surface conditioner where asphaltic self-adhesive membranes are applied. It is suitable for use on most substrates including wood, glass mat/gypsum sheathing, masonry, concrete and metal.

Ideal for Vertical & Horizontal Surfaces

S.A.M. dries to a high tack, providing excellent adhesion properties during the application process, and is very effective on either horizontal or vertical surfaces. Actual drying time depends on the ambient temperature and humidity during application.

Cleans and Dries Quickly

IKO S.A.M. Adhesive is a quick-drying, solvent-based surface preparation for use with IKO self-adhering roofing membranes or IKO AquaBarrier self-adhering membranes.
All substrates should be clean, dry and free from dust, dirt, oil and grease. IKO S.A.M. Adhesive cleans up easily with mineral spirits.

Easy to Apply/Bulk Packaged

IKO S.A.M. Adhesive may be applied by using a brush, roller, or by mechanically spraying.

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S.A.M. Adhesive

SELF-ADHERING MEMBRANE ADHESIVE

IKO COMMERCIAL

IKO building products are responsibly designed and produced with consideration for sustainability and the environment, incorporating quality recycled components where practical, manufactured in facilities that comply with environmental standards.

IKO S.A.M. Adhesive should always be used in well-ventilated conditions and kept away from all sources of potential ignition.

All local health and safety rules and precautions should be followed when working with IKO products.

Good building practices include ensuring the application surface is adequately prepared for adhesion of the product prior to installation. For further details, please refer to the "IKO Installation Guidelines."

Please contact your IKO Technical Representative for specific slope requirements.

CHARACTERISTICS	UNITS	NOMINAL VALUE
Specific Gravity	Kg/L	0.80
Percent Solids	% wt./wt.	35
Viscosity @ 25˚C	cps	200 - 400
Coverage (Approximate):	m^2/L (ft^2/gal)	3 to 6 (122 to 244)
Mimimum Application Temperature	˚C (˚F)	-10 to 40 (14 to 104)
Service Temperature	˚C (˚F)	-40 to 66 (-40 to 150)

See also Material Safety Data Sheet MSDS #1147. The information on this product information sheet is based upon data considered to be true and accurate, based on laboratory tests and production measurements, and is offered solely for the user's consideration, investigation and verification. Nothing contained herein is representative of a warranty or guarantee for which the manufacturer can be held legally responsible. The manufacturer does not assume any responsibility for any misrepresentation or assumptions the reader may formulate.

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TECHNICAL DATA SHEET

PRODUCT NUMBER: 7870010 ***May, 2011***

IKO MOD-BIT PRIMER

IKO Mod-Bit Primer is solvent-based and intended to prepare surfaces prior to applying heat welded membranes. IKO Mod-Bit Primer is formulated with a rubber modified bitumen and fast-evaporating solvents for quick drying. The modified bitumen enhances membrane adhesion to a variety of substrates and improves membrane performance over a wide range of temperatures and conditions. IKO Mod-Bit Primer can be applied with a brush, roller or sprayer. Surfaces to be primed must be dry and clean. Primer must be thoroughly dry before attempting to apply the membrane. (approx. one hour depending on temperature). May be applied at temperatures above -12°C. IKO Mod-Bit Primer is available in 18.93 L (5 U.S. gal) pails. IKO's products are produced and designed with consideration for environmental responsibility and sustainability, manufactured in facilities that comply with the most stringent government environmental regulations, and can therefore be a part of any "green" construction project.

CHARACTERISTIC	UNITS	NOMINAL VALUE
COLOUR:	-	Black Liquid
NON-VOLATILE (BY WEIGHT):	%	35
FLASH POINT (TCC):	°C	> -18
SPECIFIC GRAVITY:	kg/L	0.85
VISCOSITY @ 25 °C:	cps	50 - 100
VOLATILE ORGANIC COMPOUNDS (VOC):	g/L	545
APPLICATION TEMPERATURE:	°C	> -12
COVERAGE*:	m^2/L (ft^2/ gal)	4 to 7 (165 to 250)
DRYING TIME (@50% R.H., 20°C, AND DRY SUBSTRATE):**	Hours	1
SERVICE TEMPERATURE:	°C	-40 to 66

* Depending on porosity and texture of surface.

** Do not attempt to accelerate the drying of the Primer by heating with a torch! Always use caution when handling flammable materials.

Not intended for interior application.

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PRO FLEECE

Commercial Product Data Sheet

Product Description

Pro Fleece is a non-woven, needle-punched polyester fabric reinforcement specially designed for compatibility with Parapro, Terapro, and Paraflex liquid products.

Product Uses

Pro Fleece is used as a fabric reinforcement in Parapro Flashing Systems, Parapro Roof Membrane Systems, Terapro Flashing Systems, Terapro Waterproofing and Surfacing Systems, Terapro VTS Waterproofing and Surfacing Systems, Paraflex 531 Liquid Flashings, and Paraflex Liquid Membranes.

Packaging

Pro Fleece is packaged in the following roll dimensions:

WIDTH	LENGTH
12 in (305 mm)	82 ft (25 meter)
12 in (305 mm)	164 ft (50 meter)
25 in (630 mm)	164 ft (50 meter)
41 in (1050 mm)	164 ft (50 meter)

Color and Identification Markings

Pro Fleece is a white non-woven fabric.

- The 41 in x 164 ft (1050 mm x 50 m) (1050 mm) fleece has red logo printing and side lap lines.
- The 25 in x 164 ft (630 mm x 50 m) fleece has red logo printing.
- The 12 in x 164 feet (305 mm x 50 m) fleece has red logo printing.
- The 12 in x 82 ft (305 mm x 25 m) has no logo or other printed markings.

Storage

Always store in cool and dry location. Store flat to avoid deforming rolls and creasing fabric. Shelf life is indefinite with proper storage.

Fleece Properties

Physical & Mechanical Properties	Pro Fleece (unsaturated)
Color	White
Nominal Thickness	40 mils
Weight (g/m²)	110
Water Absorption	<1%

Current copies of all Siplast Commercial Product Data Sheets are posted on the Siplast Web site at www.Siplast.com.

Rev 2/2018

Siplast 1000 Rochelle Blvd. Irving, TX 75062-3940 | 201 Bewicke Ave., Suite 208 North Vancouver, BC, Canada V7M 3M7 | Customer Service in North America 1.800.922.8800 www.siplast.com

siplast®

Parapro 123 Flashing & Roof Membrane **Systems**

Liquid efficiency. Siplast standards.

Parapro Roof Membrane provides an excellent solution for the area surrounding the air handlers on this Paradiene 20 TG/ 30 FR TG roof.

Innovation

One of the most successful commercial product innovations of the last century occurred in the 1930s when polymethyl methacrylate resins, commonly known as PMMA, were first synthesized. Practical applications for the new resin, which included everything from aircraft windshields to dentures, soon followed. The material proved to be exceptionally durable, and the use of PMMA grew rapidly. But in spite of its outstanding performance, the material was too rigid for use in waterproofing applications – until the 1970s.

That's when a PMMA formulation was developed that, once cured, was resilient rather than rigid. Today, Parapro Roof Membrane and Flashing Systems offer all the benefits of PMMA technology and liquid application in products that meet the performance standards of Siplast.

Advantages

Jobs with difficult access, tight clearances, odd-shaped penetrations, and exposure to substances that can adversely affect conventional roofing materials can be a challenge for even the best traditional roofing plies. In such cases, a liquid-applied Parapro System is an excellent option. Parapro Roof Membrane can be used in conjunction with Siplast Paradiene roof membranes or as a stand-alone alternative to roofing sheets. Parapro is ideal for areas where flame-free application is required, water doesn't drain quickly or completely, or areas

Liquid-applied Parapro PMMA Roof Membrane solved logistical challenges associated with reroofing this downtown highrise.

requiring resistance to many conditions and substances that can negatively affect more traditional roofing products, including:

- Vegetable oils.
- Animal fats.
- Environmental contaminants.
- Foot traffic.
- UV.

In addition to performance advantages, the science of PMMA gives Parapro numerous advantages over other flame-free systems, including dramatically faster cure times than liquid-applied polyester and polyurethane products. Parapro resins are VOC compliant, and unlike many polyurethane materials are solvent-free, and isocyanate-free. The Parapro waterproofing layer is rainproof in 30 minutes and is ready for foot traffic in two hours. And Parapro offers greater inter-layer bond strength and improved durability against dynamic/static load versus polyester and polyurethane products.

Quality

Siplast Parapro resins are manufactured at our state-of-the-art North American liquid resin manufacturing facility. In the Resin Laboratory, stringent quality control tests are performed on every batch of material we produce to ensure that all Parapro products meet key performance criteria. In addition, Siplast Research and Development continually studies issues related to application quality control, and long-term performance.

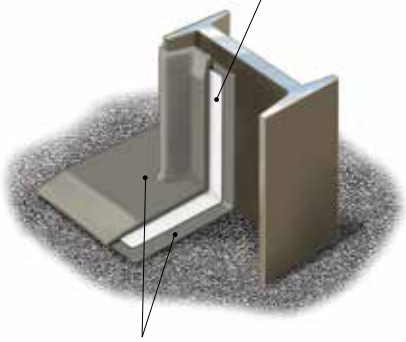
Siplast is committed to placing the same emphasis on quality, long-term liquid-applied roofing and flashing systems that has built our strong reputation as an industry leader and innovator in advanced SBS-modified bitumen roofing and waterproofing systems.

Parapro Products

Parapro resins are each formulated to meet the demands of specific applications, from flashing and roofing to green roof waterproofing.

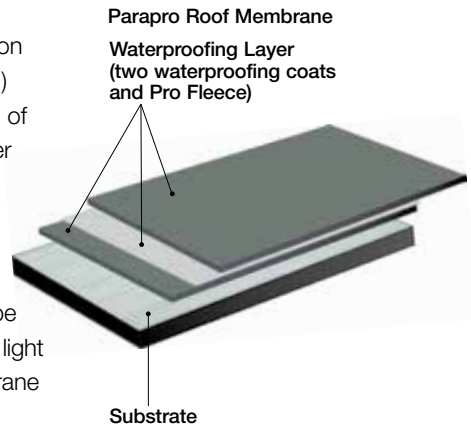
Parapro 123 Flashing

Parapro 123 Flashing is an ideal solution for difficult flashing situations, including equipment supports, I-beams, H-beams, stanchions, conduit, and unusual penetrations. It is a layered application consisting of two coats of catalyzed, thixotropic PMMA resin encapsulating a layer of polyester fleece. Parapro 123 Flashing can be installed between the plies of Siplast SBS-modified bitumen roof systems, or on top of the Siplast Paradiene 30 finish ply. In addition, Parapro adheres to many common construction materials, including plastics, concrete, and steel. The finished application is fully reinforced and seamless.



Parapro Roof Membrane

The Parapro Roof Membrane System is a seamless, fully reinforced, layered application consisting of one coat of primer (if required) and a waterproofing membrane comprised of two resin waterproofing coats and polyester fleece fabric. The completed high-mil thickness application provides a durable, resilient waterproofing membrane.



The Parapro Roof Membrane System can be surfaced with aggregate, and is available in light gray and white. White Parapro Roof Membrane is California Title 24 Part 6 compliant, and qualifies for LEED certification points as defined by the United States Green Building Council. Optional color finishes can be applied to the finished Parapro Roof Membrane, simplifying the application and maintenance of rooftop markings.

Parapro Roof Membrane Systems can be specified for green roofing applications. The built-in root-resistant capabilities of Parapro make it an excellent option for both extensive and intensive green assemblies.

Bright white, liquid-applied Parapro PMMA Roof Membrane offers cool roof benefits with exceptional durability.

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Application

We recognize that providing quality products does not guarantee a successful job. So Siplast provides a network of trained contractors and field technical support. Parapro Systems are installed exclusively by Siplast Select Contractors. These independent professionals have met the qualifications of the toughest contractor certification program in the industry – ours. Their proven skill and dedication have demonstrated time and again that they regard themselves as members of a team dedicated to installing great roofing and waterproofing systems.

Guarantee

Siplast offers a written guarantee covering workmanship and materials on all approved Parapro projects when Siplast materials are applied by a Siplast Select Contractor, provided all pre- and post-job procedures have been followed. Contact your Siplast Representative for a full explanation of the Siplast Parapro Guarantee.

Liquid-applied Parapro Roof Membrane provided an efficient solution for this crowded roof.

Cover Photo:
Bright white Parapro Roof Membrane offers durable protection for this facility in Colorado.

www.siplast.com

For information on Siplast Roofing and Waterproofing Systems, scan our QR code.

SIP03/REV.01-18/01-18

IKO MS Detail

DETAIL ACCESSORY

IKO COMMERCIAL

STOCK# **1850079**

SIZE: **3.78 L (1 gal)**

PAILS PER PALLET: **75**

PALLET SIZE: **122 cm x 102 cm (48 in x 40 in)**

PACKAGING: **315 ml sausages**

PAIL SIZE: **12 units/pail**

COLOUR: **Medium Grey**

Note: All reported values are nominal.

An excellent liquid membrane option that's solvent-free and dual purpose, let IKO MS Detail go to work for your next commercial roofing project.

- SOLVENT FREE
- PROTECTS DETAIL AREAS

IKO MS Detail

DETAIL ACCESSORY

Ideal for Complex Detail Areas

IKO MS Detail was designed to coat and protect exposed complex detail areas such as flashings, mechanical equipment, and roof/wall penetrations which would normally require intricate labour.

Waterproof

IKO MS Detail cures as a result of a chemical reaction with the ambient humidity and becomes a tough, monolithic waterproof membrane.

Easy to Apply

IKO MS Detail is a solvent-free, liquid-applied membrane coating that serves as an excellent waterproofing option for hard to reach roof areas.

Multi-Use

IKO MS Detail also may be used for bridging/sealing metal joints, transitions or for coating complex surfaces requiring a membrane.

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IKO MS Detail

DETAIL ACCESSORY

IKO® COMMERCIAL

All local health and safety rules and precautions should be followed when working with IKO products. See also Material Safety Data Sheet MSDS #1253.

Good building practices include ensuring the application surface is adequately prepared for the adhesion of the product prior to installing it. For further details please refer to the "IKO Installation Guidelines".

ISO 9001 – 2008 REGISTERED FACILITY

Please contact your IKO Technical Representative for specific slope requirements.

CHARACTERISTICS	UNITS	NOMINAL VALUE
Appearance:	—	Viscous Liquid
Specific Gravity: (@ 25˚C)	Kg/L	1.4 – 1.5
Flash Point:	˚C (˚F)	None
Skin Formation: (@ 20˚C)	Minutes	30 - 60
Shelf Life	Months	12
Application Temperature:	˚C (˚F)	-10 to 40 (15 to 104)
Application Rate:	m^2/3.8L (ft^2/gal.)	2.5 (25)
Service Temperature:	˚C (˚F)	-20 to 88 (-4 to 190)

The information on this product information sheet is based upon data considered to be true and accurate, based on laboratory tests and production measurements, and is offered solely for the user's consideration, investigation and verification. Nothing contained herein is representative of a warranty or guarantee for which the manufacturer can be held legally responsible. The manufacturer does not assume any responsibility for any misrepresentation or assumptions the reader may formulate.

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Research Test Report

Report No.: 015-18 **Date:** January 24, 2018

Sample Description: Armourvent Base Armourbond Flash		
Submitted By / Obtained From: Christopher O'Day		
Requested Test / Reasons for Request / Hypothesis: ASTM D6164 & D6163 ASTM D5147 Break strength, % elongation @ max. load at 23°C and -18°C, % ultimate elongation before and after heat conditioning ASTM D4073 Tensile tear test (Notched) ASTM D5147 Low temperature flexibility ASTM D5147 Dimensional stability ASTM D5147 Net mass per unit area ASTM D5147 Compound stability CGSB-37.56-M Dynamic Impact Static puncture Lap Joint Tear Strength (Pant test) Dimensional Tolerance		
Complaint Reference No.: N/A	**Date Samples Rec'd:** August 7, 2017	**Sample No.:** 17-1137
Disposition of Samples: Consumed	**Location:** Research	
R&D Tax Credit Eligibility (Y/N): N	**Total Time Spent (Hours):** 140	

Purpose:
Annual Compliance Testing – August

Method:
Break Strength - Tests the resistance of a material to a force tending to tear it apart. Measured as the maximum tension the material can withstand before tearing.

% Elongation - Amount of extension of an object under stress, expressed as a percentage of the original length.

Tear Strength – How well a material resists the growth of any cuts when under tension measured mechanically.

Dimensions – Physical properties of the specimen usually compared to manufactures claims. This can included thickness, length and width of a product.

Low Temperature Flexibility – Lowest temperature recorded at which no visual signs of cracking in the membrane are observed after bending at 180° at -18°C.

Dimensional Stability – The degree to which a material maintains its original dimensions when subjected to changes in temperature and humidity.

Compound Stability – This test determines the high-temperature stability of polymer-modified bituminous sheets.

Dynamic Impact - Membranes shall withstand the impact energy of 9J without perforation.

Lap Joint – Lap Joint determines the shear strength of adhesives for bonding materials when tested on a single-lap-joint specimen.

Observations:
All out of spec values are red and bolded.

Table 1: Thickness, Net Mass per Unit Area, Compound Stability, Tear Strength and Static Impact

Sample	Thickness, Grade G, min. (mm)	Net Mass per Unit Area, Grade G, min. (g/m²)	Compound Stability	Static Impact	Tear Strength (Pant) N
Armourvent Base	2.3	2671	Pass	Pass	53
Specifications as per ASTM D6163 Type I	Min 2.0	Min 2197	102°C	CGSB-37.56-M 9th Draft 4 of 5 @ 150N for 24 hours	CGSB-37.56-M 9th Draft 20

Table 2: Break Strength, % elongation and % ultimate elongation

Sample	Break Strength (lbf/in)		% Elongation @ Max. Load		% Ultimate Elongation
	23°C	-18°C	23°C	-18°C	23°C
Armourvent Base	66	109	3	5	71
Specifications as per ASTM D6163 Type I	min 30	min 70	min 1	min 2	min 3

Table 3: Tensile Tear Test, Low Temperature Flex and Dimensional Stability

Sample	Tensile Tear Test (Notch) (N)	Low Temperature Flexibility (-18°C)	Dimensional Stability (%)
Armourvent Base	461	Pass	0.45
Specifications as per ASTM D6163 Type I	Min 156	No cracks	>+ -0.5%

Table 4: Lap Joint, Dimensional Tolerances and Dynamic Impact

Sample	Lap Joint Side (kN)	Dimensional Tolerances (%)		Dynamic Impact
		Width	Length	
Armourvent Base	11	0	0.01	Pass
Specifications as per CGSB-37.56-M 9th Draft	min 4.0	>+ -0.7%	>+ -1%	CGSB-37.56-M 9th Draft 20 of 24 @ 9J