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Project Title PROCUREMENT FOR CONSTRUCTION
ROOF REPLACEMENT

191-221 PENNIE AVENUE
TEHKUMMAH, ONTARIO

Project Number R.074361.001

Project Date 2014-11-28

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PART 1 - GENERAL

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| 1.1 MINIMUM
STANDARDS | .1 | <p>Execute work to meet or exceed:</p> <p>.1 National Building Code of Canada 2010, National Fire Code of Canada 2010, Ontario Building Code 2012 and any other code of provincial or local application, including all amendments up to project date, provided that in any case of conflict or discrepancy, the more stringent requirements shall apply as directed by the Departmental Representative.</p> <p>.2 Rules and regulations of authorities having jurisdiction.</p> <p>.3 Treasury Board of Canada Secretariat, Fire Protection Standard, April 1, 2010.</p> <p>.4 Observe and enforce construction safety measures required by National Building Code 2010, Part 8 Safety Measures at Construction and Demolition Sites, Occupational Health and Safety Act and Regulations for Construction Projects, Revised Statutes of Ontario 1990, Chapter O.1 as amended, O. Reg. 213/91 as amended by O. Reg. 631/94, O. Reg. 143/99, O. Reg. 571/99, O. Reg. 145/00, O. Reg. 527/00, R.R.O. 1990, Reg. 834, O. Reg. 278/05 (Asbestos), Workplace Safety and Insurance Board and municipal statutes and authorities.</p> <p>.5 Environmental Protection Act, O. Reg. 102/94 and O. Reg. 103/94.</p> |
| 1.2 TAXES | .1 | <p>Pay applicable Federal, Provincial and Municipal taxes.</p> |
| 1.3 FEES, PERMITS,
CERTIFICATES AND
LETTERS | .1 | <p>Provide authorities having jurisdiction with information requested.</p> |
| | .2 | <p>Pay fees and obtain certificates, permits and letters required and submit to Departmental Representative.</p> |

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| <u>1.4 EXAMINATION</u> | .1 | Examine existing conditions and determine conditions affecting work. |
| <u>1.5 DOCUMENTS</u> | .1 | Keep one copy of contract documents and shop drawings on the site. |
| <u>1.6 ELECTRONIC SUBMITTALS</u> | .1 | Submit number of hard copies specified for each type and format of submittal and also submit in electronic format as pdf files. Forward pdf files on USB compatible with PWGSC encryption requirements or through email or alternate electronic file sharing service such as Oproma, as directed by Departmental Representative. |
| <u>1.7 CONTRACTOR'S AS-BUILT DRAWINGS AND SPECIFICATIONS</u> | .1 | As work progresses, neatly record significant deviations from the Contract reference drawings and specifications using fine, red marker on full size white prints and specifications. Make the same changes on the electronic pdf files. |
| | .2 | Neatly print lettering and numbers in size to match original or use Adobe Acrobat markup tools. Lines may be drawn free-hand but shall be neat and accurate. Add at each title block note: "AS BUILT". Also circle on List of Drawings each title and number of drawing marked with "AS-BUILT" information. Circle on Table of Contents each specification section number and title of specification sections marked with "AS-BUILT" information. |
| | .3 | Departmental Representative will provide one electronic set of drawings and specifications for as-built drawing and specification purposes.
.1 Drawings and Specifications are in pdf format.
.2 Amendments and addenda are in MS Word or pdf. |
| | .4 | Record following significant deviations:
.1 Field changes of dimension. |
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1.7 CONTRACTOR'S
AS-BUILT DRAWINGS
AND SPECIFICATIONS
(Cont'd)

- .4 (Cont'd)
- .2 Other significant deviations which are concealed in construction and can not be identified by visual inspection.
- .3 Alternative materials and systems installed replacing original materials and systems specified by trade name.
- .5 Turn one set, paper copy and electronic copy, of AS-BUILT drawings and specifications over to Departmental Representative on completion of work. Submit pdf files on USB compatible with PWGSC encryption requirements, through email or alternate electronic file sharing service such as ftp.
- .6 If project is completed without significant deviations from Contract drawings and specifications submit to Departmental Representative one set of drawings and specifications marked "AS-BUILT".

1.8 MAINTENANCE
DATA

- .1 On completion of project submit to Departmental Representative 3 copies of Maintenance Data assembled in three 255 x 295 mm vinyl-covered, 3-ring, loose-leaf folders with title sheet labelled "Maintenance Manual", project title, date and list of contents.
- .2 Include in each binder maintenance instructions for finished surfaces of each type of flashing, trim, vent and shingle, warranties and guarantees in form approved by Departmental Representative, and complete set of final shop drawings (bound separately), names, addresses and phone numbers of sub-contractors and suppliers, list of materials with names of manufacturer and source of supply. Neatly type lists and rates. Use clear drawings, diagrams or manufacturer's literature.

1.9 SHOP DRAWINGS
AND PRODUCT DATA
SHEETS

- .1 Prior to submission check and certify as correct, shop drawings(if ventilation changes are made) and product data sheets. Issue to Departmental Representative each submission at least 14 days before dates reviewed submission will be needed.
- .2 Submit 3 prints and 1 electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .3 Submit 3 prints and 1 electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .4 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept. This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting generality of foregoing, Contractor 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 all sub-trades.
- .5 Submit 3 prints and 1 electronic of product data sheets for standard manufactured items. Indicate VOC's in g/l for adhesives, primers, sealants, paints, curing and sealing compounds, sealers, particleboard, plywood, preserved wood, and any other product that emits more than 25 g/l VOC during application, curing, initial off gassing or end use.
- .6 Responsibility for errors, omissions or deviations from requirements of Contract

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| <u>1.9 SHOP DRAWINGS
AND PRODUCT DATA
SHEETS
(Cont'd)</u> | .6 | (Cont'd)
Documents is not relieved by Departmental
Representative's review of submittals. |
| | | |
| <u>1.10 CONSTRUCTION
PHOTOGRAPHS</u> | .1 | Submit electronic and hard copy of colour
digital photography in jpg format, standard
resolution. |
| | .2 | Identification: name and number of project and
date of exposure indicated. |
| | .3 | Viewpoints and location of viewpoints
determined by Departmental Representative. |
| | .4 | Frequency: as directed by Departmental
Representative. |
| | | |
| <u>1.11 SAMPLES</u> | .1 | Submit duplicate samples. |
| | .2 | Identify manufacturer's name, product and
colour. |
| | .3 | Installed work shall match reviewed sample. |
| | | |
| <u>1.12 ADDITIONAL
DOCUMENTS</u> | .1 | Departmental Representative may furnish
drawings or photographs to clarify work. |
| | .2 | Such drawings and photographs become part of
Contract Documents. |
| | | |
| <u>1.13 PROTECTION</u> | .1 | Protect existing work from damage. |
| | .2 | Replace damaged existing work with material and
finish to match original. |
| | .3 | Protect existing trees and plants on site and
adjacent properties. |
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| 1.14 EXISTING
SERVICES | .1 | Use designated existing sanitary facilities. |
| | .2 | Use existing water and electrical services at no cost. |
| 1.15 TEMPORARY
FACILITIES AND
SERVICES | .1 | Provide and maintain temporary facilities and services required to carry out work. |
| | .2 | Remove temporary facilities and services on completion of work. |
| | .3 | Provide and maintain temperature and enclosure required to prevent frost damage to work. |
| 1.16 METRIC SIZED
MATERIALS | .1 | SI metric units of measurement are used exclusively on the drawings and in the specifications for this project. |
| | .2 | The Contractor is required to provide metric products in the sizes called for in the Contract Documents except where a valid claim can be made that a particular product is not available on the Canadian market. |
| | .3 | Claims for exemptions from use of metric sized products shall be in writing and fully substantiated with supportive documentation. Promptly submit application to Departmental Representative for consideration and ruling. Non-metric sized products may not be used unless Contractor's application has been approved in writing by the Departmental Representative. |
| | .4 | Difficulties caused by the Contractor's lack of planning and effort to obtain modular metric sized products which are available on the Canadian market will not be considered sufficient reasons for claiming that they cannot be provided. |
| | .5 | Claims for additional costs due to provision of specified modular metric sized products will not be considered. |
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1.17 MATERIAL AND
EQUIPMENT

- .1 Use new products unless otherwise specified.
- .2 Deliver and store material and equipment to manufacturer's instructions with manufacturer's labels and seals intact.
- .3 When material or equipment is specified by standard or performance specifications, upon request of Departmental Representative, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.

1.18 CUTTING AND
REMEDIAL WORK

- .1 Co-ordinate work to keep cutting and remedial work to a minimum.
- .2 Execute cutting and remedial work required. Notify Departmental Representative before cutting, boring or sleeving structural members.
- .3 Prior to cutting or drilling horizontal or vertical surfaces including concrete, concrete block or other structural substrate, determine location of reinforcing, service lines, pipes, conduits or other items by x-ray, ground penetrating radar or other appropriate method. Submit findings to Departmental Representative prior to cutting or drilling.
- .4 Use specialists in affected material to execute cutting and remedial work.
- .5 Match work to adjoining construction and finishes.
- .6 Fit components tight to adjoining surfaces.
- .7 Make good surfaces exposed or disturbed by work with material and finish to match existing adjoining surfaces.

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| <u>1.19 FASTENINGS</u> | .1 | Provide fastenings of type, size and spacing required to assure secure anchorage. |
| | .2 | Obtain Departmental Representative's permission before using explosive actuated fasteners. |
| <u>1.20 CO-ORDINATION AND CO-OPERATION</u> | .1 | Site will be occupied during execution of work. |
| | .2 | Building will be occupied during execution of work. |
| | .3 | Ground level work area will be and roof work area will not be occupied during execution of work. |
| | .4 | Execute work with minimum disturbance to occupants, public and normal use of site and building. |
| | .5 | Maintain access and exits. |
| | .6 | Where security has been reduced by work of contract, provide temporary means to maintain security. |
| <u>1.21 ALTERATIONS TO EXISTING BUILDING</u> | .1 | Remove and recycle or dispose of: <ul style="list-style-type: none"> .1 Asphalt shingles, underlayment and eave protection. .2 Damaged flashings, counterflashings and vents. |
| | .2 | Remove, temporarily store, clean, alter to suit and reinstall: <ul style="list-style-type: none"> .1 Eavestroughs. .2 Goosenecks. .3 Downspout strainers. .4 Ridge vents. |
| | .3 | Provide new openings required in existing construction. |
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- .4 Block in openings where items removed with material and finish to match existing adjoining construction.

1.22 INSPECTION AND TESTING

- .1 When initial tests and inspections reveal work not to contract requirements, pay for tests and inspections required by Departmental Representative on corrected work.

1.23 COST BREAKDOWN

- .1 Within 48 hours of notification of acceptance of bid furnish a cost breakdown by Section aggregating contract amount.
- .2 Within 48 hours of acceptance of bid submit a list of subcontractors.

1.24 SCHEDULING

- .1 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion. When schedule has been reviewed by the Departmental Representative take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.

1.25 CLEANING

- .1 Maintain project free of accumulated waste and rubbish.
- .2 Final cleaning:
 - .1 Remove temporary protection.
 - .2 Remove dust, dirt and foreign matter from surfaces.
 - .3 Broom clean paved exterior surfaces, rake clean other exterior surfaces.

1.26 CONSTRUCTION & .1
DEMOLITION WASTE

Carefully deconstruct and source separate materials/equipment and divert from D&C waste destined for landfill to maximum extent possible. Reuse, recycle or sell material off site for reuse except where indicated otherwise. On site sales are not permitted. Target for this project is 50% diversion from landfill.

- .2 For construction and demolition projects, even for those not over 2,000 m² total floor area, source separate waste and maintain waste audits in accordance with the Environmental Protection Act, Ontario Regulation 102/94 and Ontario Regulation 103/94.
 - .1 Provide facilities for collection, handling and storage of source separated wastes.
 - .2 Source separate the following waste:
 - .1 Corrugated cardboard.
 - .2 Wood, not including painted or treated wood or laminated wood.
 - .3 Steel.
- .3 Submit a waste reduction workplan indicating the materials and quantities of material that will be recycled and diverted from landfill.
 - .1 Indicate how material being removed from the site will be reused or recycled.
- .4 Submit proof that all waste is being disposed of at a licensed land fill site or waste transfer site. A copy of the disposal/waste transfer site's license and a letter verifying that said landfill site will accept the waste must be supplied to Departmental Representative prior to removal of waste from the demolition site.

1.27 ASBESTOS
DISCOVERY

- .1 If during alteration work existing asbestos material is discovered (e.g. fireproofing, acoustic or thermal insulation, pipe or tank covering) stop work and immediately notify Departmental Representative. Do not remove any existing material containing asbestos fibres.

1.28 DESIGNATED
SUBSTANCES .1 The work area has been surveyed for the presence of designated substances referred to in the Occupational Health and Safety Act and Regulations for Construction Projects, O.Reg. 213/91 as amended.

.2 There are no "designated substances" as defined by the Occupational Health and Safety Act Revised Statutes of Ontario, 1990, Chapter 0.1 as amended, in the work area.

1.29 SPECIAL
PROTECTION AND
PRECAUTIONS .1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of material safety data sheets acceptable to ESDC - Labour Program.

1.30 POLLUTION
CONTROL .1 Spills of deleterious substances:
.1 Immediately contain, limit spread and clean up in accordance with provincial regulatory requirements.
.2 Report immediately to Ontario Spills Action Centre: 1-800-268-6060.
.3 Further information on dangerous goods emergency cleanup and precautions including a list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

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PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u> | .1 | Canadian Standards Association (CSA): Canada
.1 CSA S350-M1980(R2003), Code of Practice
for Safety in Demolition of Structures. |
| | .2 | National Building Code 2010 (NBC):
.1 NBC 2010, Division B, Part 8 Safety
Measures at Construction and Demolition Sites. |
| | .3 | National Fire Code 2010 (NFC):
.1 NFC 2010, Division B, Part 5 Hazardous
Processes and Operations, subsection 5.6.1.3
Fire Safety Plan. |
| | .4 | Province of Ontario:
.1 Occupational Health and Safety Act Revised
Statutes of Ontario 1990, Chapter O.1 as
amended, and Regulations for Construction
Projects, O. Reg. 213/91 as amended.
.2 O. Reg. 490/09, Designated Substances.
.3 Workplace Safety and Insurance Act, 1997.
.4 Municipal statutes and authorities. |
| | .5 | Treasury Board of Canada Secretariat (TBS):
.1 Treasury Board, Fire Protection Standard
April 1, 2010 www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316&section=text . |
| <u>1.2 ACTION AND
INFORMATIONAL
SUBMITTALS</u> | .1 | Submit in accordance with Section 01 11 01. |
| | .2 | Submit site-specific Health and Safety Plan:
Within 7 days after date of Notice to Proceed
and prior to commencement of Work. Health and
Safety Plan must include:
.1 Results of site specific safety hazard
assessment.
.2 Results of safety and health risk or
hazard analysis for site tasks and operation
found in work plan.
.3 Measures and controls to be implemented to
address identified safety hazards and risks. |
| | .3 | Provide a Fire Safety Plan, specific to the
work location, in accordance with NBC, Division |
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1.2 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .3 (Cont'd)
B, Article 8.1.1.3 prior to commencement of work. The plan shall be coordinated with, and integrated into, the existing Emergency Procedures and Evacuation Plan in place at the site. Departmental Representative will provide Procedures and Evacuation Plan. Deliver two copies of the Fire Safety Plan to the Departmental Representative not later than 14 days before commencing work.
- .4 Contractor's and Sub-contractors' Safety Communication Plan.
- .5 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 3 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 3 days after receipt of comments from Departmental Representative.
- .6 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .7 Submit names of personnel and alternates responsible for site safety and health.
- .8 Submit records of Contractor's Health and Safety meetings when requested.
- .9 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative when requested and at end of project.
- .10 Submit copies of orders, directions or reports issued by health and safety inspectors of the authorities having jurisdiction.
- .11 Submit copies of incident and accident reports.
- .12 Submit Material Safety Data Sheets (MSDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS (Cont'd)	.13	Submit Workplace Safety and Insurance Board (WSIB)- Experience Rating Report.
1.3 FILING OF NOTICE	.1	File Notice of Project with Provincial authorities prior to commencement of Work.
1.4 SAFETY ASSESSMENT	.1	Perform site specific safety hazard assessment related to project.
1.5 MEETINGS	.1	Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.
1.6 REGULATORY REQUIREMENTS	.1	Comply with the Acts and regulations of the Province of Ontario.
	.2	Comply with specified standards and regulations to ensure safe operations at site.
1.7 GENERAL REQUIREMENTS	.1	Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
	.2	Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns either accepting or requesting improvements.
	.3	Relief from or substitution for any portion or provision of minimum Health and Safety standards specified herein or reviewed site-specific

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| <u>1.7 GENERAL REQUIREMENTS (Cont'd)</u> | .3 | (Cont'd)
Health and Safety Plan shall be submitted to Departmental Representative in writing. |
| <u>1.8 COMPLIANCE REQUIREMENTS</u> | .1 | Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990 Chapter 0.1, as amended. |
| <u>1.9 RESPONSIBILITY</u> | .1 | Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work. |
| | .2 | Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan. |
| | .3 | Where applicable the Contractor shall be designated "Constructor", as defined by Occupational Health and Safety Act and Regulations for Construction Projects for the Province of Ontario. |
| <u>1.10 UNFORSEEN HAZARDS</u> | .1 | Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, immediately stop work and advise Departmental Representative verbally and in writing. |
| | .2 | Follow procedures in place for Employees Right to Refuse Work as specified in the Occupational Health and Safety Act for the Province of Ontario. |
| <u>1.11 HEALTH AND SAFETY CO-ORDINATOR</u> | .1 | Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must: |
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1.11 HEALTH AND SAFETY CO-ORDINATOR (Cont'd)	.1	(Cont'd) .1 Have site-related working experience specific to activities associated with fall protection. .2 Have working knowledge of occupational safety and health regulations. .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work. .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan. .5 Be on site during execution of Work.
1.12 POSTING OF DOCUMENTS	.1	Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province of Ontario, and in consultation with Departmental Representative. .1 Contractor's Safety Policy. .2 Constructor's Name. .3 Notice of Project. .4 Name, trade, and employer of Health and Safety Representative or Joint Health and Safety Committee members (if applicable). .5 Ministry of Labour Orders and reports. .6 Occupational Health and Safety Act and Regulations for Construction Projects for Province of Ontario. .7 Address and phone number of nearest Ministry of Labour office. .8 Material Safety Data Sheets. .9 Written Emergency Response Plan. .10 Site Specific Safety Plan. .11 Valid certificate of first aider on duty. .12 WSIB "In Case of Injury At Work" poster. .13 Location of toilet and cleanup facilities.
1.13 CORRECTION OF NON-COMPLIANCE	.1	Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

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| 1.13 CORRECTION OF
NON-COMPLIANCE
(Cont'd) | .2 | Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified. |
| | .3 | Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected. |
| 1.14 POWDER
ACTUATED DEVICES | .1 | Use powder actuated devices only after receipt of written permission from Departmental Representative. |
| 1.15 WORK STOPPAGE | .1 | Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work. |
| | .2 | Assign responsibility and obligation to Health and Safety Coordinator/Competent Supervisor to stop or start Work when, at Health and Safety Coordinator's/Competent Supervisor's discretion, it is necessary or advisable for reasons of health or safety. Departmental Representative may also stop Work for health and safety considerations. |

PART 2 - PRODUCTS

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| 2.1 NOT USED | .1 | Not used. |
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PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

PART 1 - GENERAL

1.1 REFERENCES

- .1 ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM C920-14, Standard Specification for Elastomeric Joint Sealants.
- .3 ASTM D1079-13e1, Standard Terminology Relating to Roofing and Waterproofing.
- .4 ASTM D1970/D1970M-14, Standard Specification for Self-Adhering Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- .5 ASTM D3161/D3161-14, Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method).
- .6 ASTM D4586/D4586M-07(2012)e1, Standard Specification for Asphalt Roof Cement, Asbestos Free.
- .7 ASTM E108-11, Standard Test Methods for Fire Tests of Roof Coverings.
- .8 CSA A123.1-05/A123.5-05(R2010), Asphalt Shingles Made From Organic Felt and Surfaced with Mineral Granules/Asphalt Shingles Made From Glass Felt and Surfaced With Mineral Granules.
- .9 CSA A123.2-03(R2013), Asphalt Coated Roofing Sheets.
- .10 CSA A123.51-14, Asphalt Shingle Application on Roof Slopes 1:6 and Steeper.
- .11 CGSB 37-GP-56M+Amdt-Dec-85, Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing.
- .12 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.

1.1 REFERENCES

- .13 CAN/CGSB-51.34-M86-Amdt-Nov-88, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .14 CRCA Roofing Specifications Manual 2011, Asphalt Shingle Roofing Specification Guidelines.
- .15 CAN/ULC-S107-10, Methods of Fire Tests of Roof Coverings.
- .16 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
.1 Material Safety Data Sheets (MSDS).
- .17 National Building Code of Canada 2010.
- .18 National Research Council Canada (NRC)/Institute for Research in Construction (IRC) - Canadian Construction Materials Centre (CCMC).
- .19 Ontario Building Code 2012.

1.2 SUBMITTALS

- .1 Submittals in accordance with Section 01 11 01.
 - .2 Prior to starting work, submit samples and product data sheets of each material to Departmental Representative for approval.
 - .3 Prior to starting work, carry out site inspection and submit report to Departmental Representative. Determine extent to which existing ridge vents can be reused. Determine adequacy of existing eave and ridge ventilation. If wind speeds are determined to have affected existing shingles, submit bid based on sealant bonded shingle installation with a spot of asphalt lap cement under each tab to CRCA Asphalt Shingle Specification 3.4.3.4 and to ASTM D7158 Class G 193 km/h or Class H 241 km/h wind warranty. Indicate wind uplift class in shop drawing.
 - .4 Submit shop drawings indicating any changes to eave and ridge ventilation. Indicate free area, flow rates, wind uplift class and reference standard, and compliance with NBC and OBC.
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1.2 SUBMITTALS
(Cont'd)

- .5 Submit digital photos and report to Departmental Representative indicating the condition of existing roof sheathing/framing, eave protection and other components after removing the existing asphalt shingles as specified in Part 3.
- .6 Submit manufacturer's extended warranty on installed shingles and flashings.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Asphalt shingles: to CSA A123.1/A123.5, asphalt saturated asbestos free organic felt mat surfaced with mineral granules, Type A5.1, Self Seal Shingle, minimum mass 103 kg/9m², Class F 161 km/h wind warranty tested to ASTM D3161/D3161M, fire-resistance Class C to CAN/ULC-S107 or ASTM E108, colour to match existing.
- .2 Drip edge: galvanized steel, 0.5 mm core nominal thickness, Z275 zinc coating designation to ASTM A653/A653M, prefinished green colour to match existing.
- .3 Eave protection: use either Type A or B.
 - .1 Type A: 1.02 mm thick of 0.9 mm rubberized asphalt laminated to 0.1 mm polyethylene film with removable paper backing, embossed slip resistant surface, primer recommended by manufacturer, low temperature flexibility to ASTM D1970/D1970M.
 - .1 Acceptable material: 'Ice & Water Shield' CCMC 12693-R manufactured by Grace Construction Products 866-333-3726 www.ca.graceconstruction.com/en-ca/roofing-underlaments.
 - .2 Type B: 1.0, 1.5 or 1.8 mm thick rubberized asphalt to ASTM D1970/D1970M, non woven glass fibre mat reinforcing, sand upper surface, 910 mm wide roll, self adhesive with removable paper backing.
 - .1 Acceptable material: 'Eaveguard' manufactured by Bakor Inc., 416-735-6508, www.bakor.com; 'Gripgard SX' CCMC 13273-R

2.1 MATERIALS (Cont'd)

- .3 Eave protection:(Cont'd)
- .2 Type B:(Cont'd)

manufactured by BP Canada www.bpcan.com;
'ArmourGard' CCMC 12413-R manufactured by
IKO, 800-268-0878, www.iko.com; 'Northern G
Ice and Stormseal' CCMC 13210-R
manufactured by Northern Elastomenric Inc.
800-998-4634 www.nei-act.com.

- .4 Underlayment: to CRCA Asphalt Shingle
Specification 2.2.1, No. 15 asphalt saturated
felt (non-perforated) to CSA A123.3.
- .5 Valley flashing and chimney flashing:
galvanized steel, 0.5 mm core nominal thickness,
Z275 zinc coating designation to ASTM
A653/A653M, prefinished green colour to match
existing.
- .6 Starter strip: asphalt shingles to CSA A123.2.
- .7 Hip and ridge cap: asphalt shingles, cold
weather storage to CRCA Asphalt Shingle
Specification.
- .8 Plastic cement: cutback asphalt to ASTM D4586.
- .9 Fasteners: to CRCA Asphalt Shingle
Specification, minimum 9 mm head, 10-12 guage,
galvanized steel roofing nails or power driven
1.6 mm galvanized steel wire staples, 23 mm
crown width, minimum 20 mm deck penetration.
- .10 Shingle over ridge vent: weather baffle with
air guide openings on underside, polypropylene
construction. Free area: 580 cm²/1500 mm length.
Prefinished green colour to match existing.
- .11 Sheet metal: galvanized steel, 0.6 mm core
nominal thickness, Z275 zinc coating designation
to ASTM A653/A653M, factory prefinished green to
match existing with 0.102 mm thick polyvinyl-
chloride on exposed side and 0.001 mm thick
epoxy primer on concealed side.
- .12 Wedges: high impact polypropylene or rolled
lead, 24 x 76 mm, tapered 1.6 to 6.4 mm.

- | | | |
|---------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 2.1 MATERIALS
(Cont'd) | .13 | Vent stack collar: one piece neoprene, 500 mm ² deck flange, size to suit vent, sealed to stack with flexible, non-shrink collar. |
| | .14 | Sealant for eavestroughs, goosenecks and downspouts: one part silicone to ASTM C920, primerless, Type S, Grade NS, Class 100, SWRI validated. |

PART 3 - EXECUTION

- | | | |
|-----------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 PREPARATION | .1 | Carry out roof inspection prior to removing existing shingles and flashings as specified in article 1.2. |
| | .2 | Disconnect existing goosenecks and downspouts where eavestroughs are to be removed based on condition survey submitted to and reviewed by Departmental Representative. Carefully remove existing eavestroughs where required, protect and store for reinstallation. Protect downspouts to remain in place during work. |
| | .3 | Remove existing shingles, underlayment, valleys, damaged eave protection, flashings and trim and dispose of in accordance with Section 01 11 01. Inspect and photograph roof deck and submit to Departmental Representative for review before applying new materials. Protect exposed structure from damage due to wind, rain, snow, ice, hail and equipment/foot traffic or storage of materials. |
| 3.2 APPLICATION | .1 | Install materials in accordance with CRCA Roofing Specifications Manual, Asphalt Roofing Shingles Specification and Asphalt Shingles-Typical Details Figures, CSA A123.51, NBC and OBC. |
| | .2 | Drip edge: install drip edge along eaves and rake to CRCA Figure 1: Drip Edge, overhanging 12 mm with minimum 50 mm flange extending onto roof decking, set in plastic cement, lap joints 100 mm, nail at 400 mm centres. |

3.2 APPLICATION
(Cont'd)

- .3 Apply eave protection from bottom edge to 1800 mm (6') up from edge to CRCA Figure 2: Eave Protection.
- .4 Apply underlayment over entire rest of roof to CRCA Specification article 3.2 Underlayment.
- .5 Install sheet metal open valley linings to CRCA Figure 7: Open Valley.
- .6 Install metal flashings and counter flashings to CRCA Figures. At down slope abutting vertical wood siding to CRCA Figure 11: Wall Flashing (Down Slope) and metal rain diverter to CRCA Figure 12: Rain Diverter. At masonry chimneys to CRCA Figures 15 and 16: Masonry Chimney Back Flashing, CRCA Figure 17: Chimney Saddle and CRCA Figure 18: Masonry Chimney, Front Flashing.
- .7 Install asphalt shingles. Starter strip to CRCA Figure 3: Shingle Starter. Nail to CRCA Figure 4: Nailing and CRCA Figure 6: 6-Nail Pattern. Hips and ridges to CRCA Figure 10: Hip and Ridge.
- .8 Vent stack collar preformed pipe boot: to CRCA Figure 20: Application of Flashing Over Vent Pipe and CRCA Figure 21: Application of Shingles Over Vent Pipe Flashing. Install vent stack collar over plumbing vent, collar tight to stack, deck flange below shingles on upper half and above shingles on lower half.
- .9 Ridge vent: secure at ridge, full length, in accordance with ridge vent manufacturer's written instructions and conceal with ridge shingles.

3.3 EAVESTROUGHS,
GOOSENECKS AND
DOWNSPOUTS

- .1 Reinstall eavestroughs with slope to downspouts, secured at existing spacing with eavestrough spikes through spacer sleeves.
- .2 Reconnect goosenecks to downspouts. Ensure goosenecks and downspouts are securely fastened. Seal joints.
- .3 Seal joints.

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3.3 EAVESTROUGHS, .4 Reinstall strainers in eavestroughs over
GOOSENECKS AND
DOWNSPOUTS
(Cont'd)

