
PROJECT MANUAL
Issued for Tender

Roof Shingle Replacement

Amaranth, Manitoba

Date: December 19, 2016

A|49 Project No. 149-12549-06

Set No:

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1.1 GENERAL

- .1 This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project.
- .2 The site photographs provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in place of Bidders' own investigations.
- .3 The site photographs are made available for Bidders' convenience and information, but are not a warranty of existing conditions.
- .4 These site photographs are not part of the Contract Documents, unless indicated otherwise.

1.2 SUMMARY

- .1 Description of Existing Conditions:
 - .1 6 Kinosota Rd, Amaranth (DBU 356)
 - .1 Gross Area of House: 112.5m² (1,211.11 ft²)
 - .2 House Dimensions: 4.84m x 21.8m (15.84ft x 71.5ft)
 - .3 House Addition: 2.475m x 2.830m (8.16ft x 9.33ft)
 - .4 Roof Slope: 4/12 pitch & 2/12 pitch
 - .5 Overhang depth: 125mm deep along eave, 305mm deep along gable ends.
 - .6 Roof Type: Gable roof with shed roof addition
 - .7 Roof Ventilation: 4 static roof vents
 - .8 Plumbing Stacks: 2 Polyvinyl Chloride (PVC) plumbing stacks and flange
 - .9 Miscellaneous Accessories:
 - .1 1 hydro mast
 - .2 1 rooftop mounted air conditioning unit and power conduits
 - .3 1 aerial communication tower
 - .4 1 satellite dish
- .2 Site Photographs
 - .1 Site photos of Amaranth, MB were taken on July 14, 2016, by Architecture49 Inc.

6 KINOSOTA RD, AMARANTH (DBU 356)



IMG A6-001



IMG A6-002



IMG A6-003



IMG A6-004



IMG A6-005



IMG A6-006



IMG A6-007



IMG A6-008



IMG A6-009



IMG A6-010



IMG A6-011



IMG A6-012

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Work of this Contract comprises of the complete removal and replacement of the asphalt shingles and roofing accessories located at 6 Kinostota Road, Amaranth, and further identified as DBU 356.
- .2 Description of Work:
 - .1 Remove all aerial communication towers and satellites from rooftop. Relocate operational satellites to building wall or fascia.
 - .2 Extend Polyvinyl Chloride (PVC) plumbing stacks minimum 150mm above roof deck.
 - .3 Remove and install new static roof vents.
 - .4 Install new drip edge flashing, roof deck underlayment, ice and water shield, and asphalt shingles.
 - .5 Existing hydro mast flange to remain.
 - .6 Remove and reinstall rooftop mounted air conditioning unit. Install new conduit roof flange to accommodate existing electrical conduit penetrations.

1.2 TAXES

- .1 Pay all taxes properly levied by law (including Federal, Provincial and Municipal).

1.3 FEES, PERMITS and CERTIFICATES

- .1 Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction.

1.4 CONSTRUCTION PROGRESS SCHEDULE

- .1 Schedule and execute work with least possible interference or disturbance to the normal use of premises.
- .2 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion. When the Departmental Representative has reviewed schedule, take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.
- .3 Carry out work during "regular hour", Monday to Friday from 07:00 to 18:00 hours.
- .4 Give the Departmental Representative 48 hours notice for work to be carried out during "off hours".

1.5 SUBMITTAL PROCEDURES

- .1 Submit promptly to Departmental Representative submittals listed for review, in orderly sequence to not cause delay in work.
- .2 Do not proceed with work affected by submittals until review is complete.
- .3 Shop Drawings:
 - .1 Submit electronic (PDF) copies of shop drawings.
 - .2 The review is for the sole purpose of ascertaining conformance with the general design concept, and does not mean approval of the design details inherent in the shop drawings, responsibility for which shall remain with the Contractor. Such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract Documents.
- .4 Product Data:
 - .1 Submit electronic (PDF) copies of product data: manufacturers catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.
 - .2 Cross reference product data information to applicable portions on Contract Documents.
- .5 Samples:
 - .1 Submit samples: examples of materials, equipment, quality, finishes and workmanship.
 - .2 Where colour, pattern or texture is criterion, submit full range of samples.
 - .3 Reviewed and accepted samples will become standard of material and workmanship, against which installed work will be verified.
- .6 Submit photographs of interiors, surrounding properties, objects and structures liable to be damaged or be the subject of subsequent claims.

1.6 REGULATORY REQUIREMENTS

- .1 References and Codes:
 - .1 Materials shall be new and work shall conform to the minimum applicable standards of the "References" indicated in the specification sections, the National Building Code of Canada (NBC), including all amendments up to tender closing date, and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.
- .2 Building Smoking Environment:
 - .1 Smoking is not permitted in the Building. Obey smoking restrictions on building property.

1.7 FIRE SAFETY REQUIREMENTS

- .1 Comply with both the National Building Code of Canada and the National Fire Code of Canada for safety of persons in buildings in the event of a fire and the protection of buildings from the effects of fire, as follows;
 - .1 The National Building Code (NBC): for fire safety and fire protection features that are required to be incorporated in a building during construction.
 - .2 The National Fire Code (NFC):
 - .1 The on-going maintenance and use of the fire safety and fire protection features incorporated in buildings.
 - .2 The conduct of activities that might cause fire hazards in and around buildings.
 - .3 Limitations on hazardous contents in and around buildings.
 - .4 The establishment of fire safety plans.
 - .5 Fire safety at construction and demolition sites.
- .2 Where work requires interruption or cause activation of fire alarms or fire suppression, extinguishing or protection systems:
 - .1 Provide "Watchman Service". In general, watchman service is defined as an individual conversant with "Fire Emergency Procedures", performing fire picket duty within an unprotected and unoccupied (no workers) area once per hour.
 - .2 Immediately upon completion of work, restore fire protection systems to normal operation and verify that all devices are fully operational.
 - .3 Inform fire alarm system monitoring agency and local Fire Department immediately prior to isolation and immediately upon restoration of normal operation.

1.8 QUALITY CONTROL

- .1 Review and Inspection of the Work:
 - .1 Allow Consultant and Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
 - .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or law of Place of Work. Coordinate date and time with regularly scheduled site visits performed by the Consultant and Departmental Representative.
 - .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
 - .4 Consultant or Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

- .2 Rejected Work:
 - .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant or Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
 - .2 Make good other Contractor's work damaged by such removals or replacements promptly.
 - .3 If in opinion of Consultant or Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant and Departmental Representative.

1.9 HAZARDOUS MATERIALS

- .1 Hazardous Materials: product, substance, or organism that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .2 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 (MSDS) acceptable to Human Resources and Skills Development Canada (HRSDC), Labour Program.
- .3 For work in occupied buildings, give the Department Representative 48 hours notice for work involving hazardous substances (Canada Labour Code Part II Section 10), and before painting, caulking or using adhesives and other materials, that cause off gassing.

1.10 TEMPORARY UTILITIES

- .1 Existing services required for work, excluding power required for space temporary heating, may be used by the Contractor without charge. Ensure capacity is adequate prior to imposing additional loads. Connect and disconnect at own expense and responsibility.
- .2 Connect to existing power supply in accordance with Canadian Electrical Code.
- .3 Notify the Departmental Representative and utility companies of intended interruption of services and obtain requisite permission.
- .4 Give the Departmental Representative 48 hours notice related to each necessary interruption of any mechanical or electrical service throughout the course of the work. Keep duration of these interruptions to a minimum. Carry out all interruptions after normal hours of the occupants.

1.11 CONSTRUCTION FACILITIES

- .1 Installation and Removal

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.
- .2 Access Scaffold:
 - .1 Scaffolding: in accordance with CSA Z797 – Code of Practice for Access Scaffold.
 - .2 Provide and maintain scaffolding, ladders and platforms.
- .3 Site Storage:
 - .1 The Departmental Representative will assign storage space that shall be equipped and maintained by the Contractor.
 - .2 Do not unreasonably encumber site with materials or equipment.
 - .3 Move stored products or equipment that interferes with operations of Departmental Representative or other contractors.
 - .4 Obtain and pay for use of additional storage or work areas needed for operations.
 - .5 Do not load or permit to load any part of work with weight or force that will endanger work.
- .4 Where security is reduced by work provide temporary means to maintain security.
- .5 Sanitary facilities:
 - .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
 - .2 Others shall not be used.
 - .3 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .6 Signage:
 - .1 Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etcetera, in both official languages or by the use of commonly understood graphic symbols and to approval of the Departmental Representative.
 - .2 No advertising will be permitted on this project.
- .7 Construction Parking
 - .1 Parking will be permitted on site provided it does not disrupt performance of Work or access to private parking.
 - .2 Provide and maintain adequate access to project site.

- .8 Protection and Maintenance of Traffic
 - .1 Provide access and temporary relocated roads as necessary to maintain traffic.
 - .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
 - .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
 - .4 Protect travelling public from damage to person and property.
 - .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
 - .6 Verify adequacy of existing roads and allowable load limit on these roads.
Contractor: responsible for repair of damage to roads caused by construction operations.
 - .7 Construct access roads necessary.
 - .8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
 - .9 Dust control: adequate to ensure safe operation at all times.
 - .10 Location, grade, width, and alignment of access roads: subject to approval by Departmental Representative.
 - .11 Lighting: to assure full and clear visibility for full width of access road and work areas during night work operations.
 - .12 Provide snow removal during period of Work.
 - .13 Remove, upon completion of work, access roads designated by Departmental Representative.

1.12 TEMPORARY BARRIERS AND ENCLOSURES

- .1 Maintain existing services to building and provide for personnel and vehicle access.
- .2 Hoarding:
 - .1 Design, erect and maintain temporary site enclosure, pedestrian walkways and provide protection, complete with signs and electrical lighting as required by authority having jurisdiction.
- .3 Weather Enclosures: protect work temporarily until permanent enclosures completed.
- .4 Dust Control:
 - .1 Provide dust tight screens or partitions to localize dust-generating activities, and for protection of workers, finished areas of work and public.
 - .2 Maintain and relocate protection until such work is complete.
 - .3 Protect all furnishings within work area with 0.102mm thick polyethylene film during construction. Remove film during non-construction hours and leave premises in clean, unencumbered and safe manner for normal daytime function.

- .5 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .6 Protection:
 - .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
 - .2 Provide necessary screens, covers, and hoardings.
 - .3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.
 - .4 Be responsible for damage incurred due to lack of or improper protection.
 - .5 Protect work against damage until take-over.
 - .6 Protect adjacent work against the spread of dust and dirt beyond the work areas.
 - .7 Protect operatives and other users of site from all hazards.

1.13 COMMON PRODUCT REQUIREMENTS

- .1 Quality of Work:
 - .1 Carry out work using qualified licenced workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.
 - .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licenced workers.
 - .3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.
- .2 Storage, Handling and Protection:
 - .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions.
 - .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove packaging or bundling until required in work.
- .3 Manufacturer's Instructions: unless otherwise indicated in specifications install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers
- .4 Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - .1 Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - .2 Consultant's Action: If necessary, Consultant will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Consultant will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or

seven days of receipt of additional information or documentation, whichever is later.

- .1 Use product specified if Consultant does not issue a decision on use of a comparable product request within time allocated.
- .5 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, unless indicated otherwise, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .6 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .7 Should disputes arise as to quality or fitness of products, decision rests strictly with Consultant based upon requirements of Contract Documents.
- .8 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .9 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.
- .10 Availability:
 - .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
 - .2 In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.14 EXAMINATION AND PREPARATION

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.
- .2 Before commencing work, establish location and extent of services lines in area of work and notify Departmental Representative of findings.
- .3 Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

- .1 Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before work begins.
- .2 Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
- .3 Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- .4 Preparation:
 - .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
 - .2 After uncovering, inspect conditions affecting performance of Work.
 - .3 Beginning of cutting or patching means acceptance of existing conditions.
 - .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
 - .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.
- .5 Start of construction or any part thereof constitutes acceptance of existing conditions and implies dimensions have been considered, verified and are acceptable.

1.15 EXECUTION

- .1 Cut, Patch and Make Good:
 - .1 Cut existing surfaces as required to accommodate new work.
 - .2 Remove all items so shown or specified.
 - .3 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.
 - .4 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.
- .2 Sleeves, Hangers and Inserts: co-ordinate setting and packing of sleeves and supply and installation of hangers and inserts. Obtain Departmental Representative's approval before cutting into structure.

- .3 Unless otherwise specified, materials for removal become the Contractor's property and shall be taken from site.
- .4 Execution:
 - .1 Execute cutting, fitting, and patching to complete Work.
 - .2 Fit several parts together, to integrate with other Work.
 - .3 Uncover Work to install ill-timed Work.
 - .4 Remove and replace defective and non-conforming Work.
 - .5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
 - .6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
 - .7 Fit Work airtight and watertight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
 - .8 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
 - .9 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.16 WASTE MANAGEMENT

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste volatile materials mineral spirits oil paint thinner into waterways, storm, or sanitary sewers.

1.17 CLOSEOUT SUBMITTALS

- .1 Submittals:
 - .1 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
 - .2 Furnish evidence, if requested, for type, source and quality of products provided.
 - .3 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
 - .4 Pay costs of transportation.
- .2 Operational and Maintenance Manuals:
 - .1 Two (2) weeks prior to final inspection of the work, submit to Departmental Representative four (4) copies of approved Operations Data and Maintenance Manual in both official languages, compiled as follows:
 - .1 Bind data in vinyl hard cover 3 "D" ring type loose-leaf binders for 212 x 275mm size paper. Binders must not exceed 75mm thick or be more than 2/3 full.

- .2 Enclose title sheet labelled "Operation Data and Maintenance Manual," project name, date and list of contents. Project name must appear on binder face and spine.
- .3 Organize contents into applicable sections of work to parallel project specifications breakdown. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
- .2 Include following information plus data specified:
 - .1 Maintenance instruction for finished surface and materials.
 - .2 Copy of hardware schedules.
 - .3 Maintenance: use clear drawings, diagrams or manufacturers' literature which specifically apply and detail the following:
 - .1 lubrication products and schedules;
 - .2 trouble shooting procedures;
 - .3 adjustment techniques; and
 - .4 operational checks.
 - .4 Suppliers' names, addresses and telephone numbers and components supplied by them must be included in this section. Components must be identified by a description and manufacturers part number.
 - .5 Guarantees showing:
 - .1 name and address of projects;
 - .2 guarantee commencement date (date of Interim Certificate of Completion);
 - .3 duration of guarantee;
 - .4 clear indication of what is being guaranteed and what remedial action will be taken under guarantee; and
 - .5 signature and seal of Guarantor.
 - .6 Additional material used in project listed under various Sections showing name of manufacturer and source of supply.
- .3 Spare parts: list all recommended spares to be maintained on site to ensure optimum efficiency. List all special tools appropriate to unique application. All parts/tools detailed must be identified as to manufacturer, manufacturer part number and supplier (including address).
- .4 Include one complete set of final shop drawings (bound separately) indicating corrections and changes made during fabrication and installation.
- .3 Records:
 - .1 As work progresses, maintain accurate records to show deviations from contract drawings. Just prior to Departmental Representative's inspection for issuance of final certificate of completion, supply to the Departmental Representative one (1) set of white prints and one (1) copy of project manual with all deviations neatly inked in. The Departmental Representative will provide two sets of clean white prints for this purpose.

- .4 Guarantees and Warranties:
 - .1 Before completion of work collect all manufacturer's guarantees or warranties and submit to Departmental Representative.

1.18 CLEANING

- .1 Clean up as work progresses. At the end of each work period, and more often if ordered by the Departmental Representative, remove debris from site, neatly stack material for use, and clean up generally.
- .2 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .3 Upon completion remove scaffolding, temporary protection and surplus materials. Make good defects noted at this stage.
- .4 Clean and polish glass, mirrors, ceramic tile, aluminum, chrome, stainless steel, baked or porcelain enamel, plastic laminate and other plastic surfaces, floors, hardware and washroom fixtures. Clean manufactured articles in accordance with manufacturer's written instructions.
- .5 Clean areas under contract to a condition equal to what previously existed and to approval of Departmental Representative.
- .6 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

1.19 SECURITY CHECK

- .1 All personnel employed on this project will be subject to security check. Obtain requisite clearance, as instructed, for each individual required to enter the premises.
- .2 Personnel will be checked daily at start of work shift and given a pass, which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.

1.20 SECURITY CLEARANCE

- .1 Contractor's personnel will require satisfactory RCMP initiated security screening in order to complete Work in premises and on site.
- .2 Obtain requisite clearance, as instructed, for each individual required to enter premises.

1.21 COST BREAKDOWN

- .1 Before submitting first progress claim, submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating the Contract Amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

1.22 PRECEDENCE

- .1 For Federal Government projects, Division 01 Sections take precedence over technical specification sections in other Divisions of this Project Manual

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 This Section includes administrative and procedural requirements for unit prices.

1.2 RELATED SECTIONS

- .1 Section 00 43 22 – Unit Prices Bid Form.

1.3 DEFINITIONS

- .1 Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if Work required by the Contract Documents are increased or decreased due to unforeseen circumstances.

1.4 PROCEDURES

- .1 Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- .2 Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- .3 Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- .4 List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

Part 2 Products

- .1 Not Used.

Part 3 Execution

3.1 LIST OF UNIT PRICES

- .1 Unit Price No. 1:
 - .1 Description: Roof Decking Replacement – specification sections 06 10 00 and 07 31 13.
 - .1 Removal and replacement of rotted roof decking.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 Selective demolition, removal, and disposal of exterior parts of structures and finishes, both above and below grade, related mechanical and electrical services and fixtures to accommodate incorporation of new building envelope.
 - .2 Salvage of designated materials.
- .2 Related Requirements:
 - .1 Individual product Sections: cutting and patching incidental to work of section. Advance notification to other sections required.

1.2 DEFINITIONS

- .1 Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- .2 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos, PCB's, CFC's, HCFC's, poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.
- .3 Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.
- .4 Selective Demolition: removal of a portion of an existing structure involving the systematic removal of some construction elements.

1.3 REFERENCES

- .1 Comply with National Building Code of Canada, Part 8, "Safety Measures at Construction and Demolition Sites", and Provincial requirements.
- .2 National Fire Protection Association (NFPA)
 - .1 NFPA 241-13, Standard for Safeguarding Construction, Alteration, and Demolition Operations.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-demolition Conference: Conduct conference at Project site.
 - .1 Review communication protocols between Contractor and Departmental Representative.
 - .2 Inspect and discuss condition of construction to be selectively demolished.
 - .3 Review structural load limitations of existing structures.
 - .4 Review and finalize selective demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - .5 Review and finalize protection requirements.
 - .6 Review procedures for noise control and dust control.
 - .7 Review procedures for protection of existing structure and materials.
 - .8 Review procedures for protection of occupied space.
 - .9 Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - .10 Review areas where existing construction is to remain and requires protection.

1.5 SUBMITTALS

- .1 Provide demolition drawings in accordance with Section 01 00 10 – General Instructions.
- .2 Action Submittals:
 - .1 Schedule of Selective Demolition Activities: Indicate the following:
 - .1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
 - .2 Interruption of utility services. Indicate how long utility services will be interrupted.
 - .3 Coordination for shutoff, capping, and continuation of utility services.
 - .4 Coordination of continuing occupancy of residence.
- .3 Informational Submittals:
 - .1 Demolition Drawings:
 - .1 Provide demolition drawing including proposed protection measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for dust control and for noise control. Indicate proposed locations and construction of barriers.

1.6 QUALITY ASSURANCE

- .1 Selective demolition work shall be performed by specialists familiar with the materials affected.
- .2 Do not damage or endanger any portion of the Work during demolition work.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Storage and Protection:
 - .1 Protect existing items designated to remain. In event of damage to such items, immediately replace or make repairs to approval of Departmental Representative and at no cost to Owner.

1.8 SITE CONDITIONS

- .1 Site Environmental Requirements:
 - .1 Ensure that selective demolition work does not adversely affect groundwater, or contribute to excess air and noise pollution.
 - .2 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
 - .1 Ensure proper disposal procedures are maintained throughout the project.
 - .3 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.
 - .4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities.
 - .5 Protect trees, plants and foliage on site and adjacent properties.
- .2 Existing Conditions:
 - .1 Should material resembling spray or trowel-applied asbestos or other designated substance be encountered, stop work, take preventative measures, and notify Consultant immediately.
 - .2 Do not proceed until written instructions have been received from Departmental Representative.
 - .3 Do not close or obstruct walkways, exits, or other facilities used by occupants of school without written permission from authorities having jurisdiction.
 - .4 Provide temporary exiting requirements as required by authorities having jurisdiction.
 - .5 Notify Departmental Representative before disrupting building access or services.

Part 2 Products

2.1 EQUIPMENT

- .1 Equipment: Wherever possible use equipment driven by an electric motor. Pneumatic and gas driven equipment are not permitted.
- .2 Do not use vibrating equipment for removal of concrete.

Part 3 Execution

3.1 EXAMINATION

- .1 Examine existing conditions to ascertain full extent of work and determine existing conditions as well as requirements for protection of adjacent work.
- .2 Review record documents of existing construction provided by Departmental Representative. Departmental Representative does not guarantee that existing conditions are same as those indicated in record documents.
- .3 Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- .4 When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Departmental Representative.

3.2 PROTECTION

- .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and parts of building to remain in place. Provide bracing and shoring required.
- .2 Areas adjacent to demolition areas may be occupied. Keep noise and vibration levels to a minimum. Schedule demolition times with Department Representative.
- .3 Protect building systems, services and equipment.
- .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .5 Do not damage or deface existing construction, equipment or finishes indicated to remain.

3.3 PREPARATION

- .1 Inspect building with Department Representative and verify extent and location of items designated for removal, disposal, salvage and items to remain.
- .2 Check conditions, obtain and confirm actual site dimensions, examine conditions, services, etc., as required to ensure correct execution of Work. Notify Departmental Representative in writing of matters, discrepancies between actual site conditions and Contract Documents that may hinder proper execution of Work.
- .3 Arrange for temporary disruption of existing services with Departmental Representative.
- .4 Locate and protect utilities in operating condition.
- .5 Notify and obtain approval of utility companies before starting demolition.

- .6 Disconnect, cap, plug or divert, as required, existing utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.
 - .1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
 - .2 Immediately notify Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.4 SELECTIVE DEMOLITION

- .1 General: Demolish and remove existing construction only to the extent required by new construction and as indicated.
- .2 Departmental Representative to be given first right of refusal on all materials salvageable from the demolition process. Except for items claimed by the Departmental Representative, waste and abandoned materials and equipment are the Contractor's property. Promptly remove from site.
- .3 Remove parts of existing walls, roofs, electrical and mechanical services and fixtures as required to permit new construction.
- .4 Demolition work indicated on drawings is schematic only. Verify conditions and dimensions on site.
- .5 Removed and Salvaged Items:
 - .1 Refer to demolition drawings and specifications for items and materials to be salvaged for reuse or to be turned over to Departmental Representative.
 - .2 Remove items designated for salvage before start of demolition work.
 - .3 Process salvaged items as indicated in other technical specification sections.
- .6 Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Departmental Representative, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- .7 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
- .8 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

- .9 Notify Departmental Representative minimum seven (7) working days prior to removal, cutting, drilling or sleeving of structural or load-bearing members including foundation walls. Mark out exact locations and dimensions to allow review. Do not proceed with work until Departmental Representative (Professional Engineer) has reviewed and approved proposed work.
- .10 Trim edges of partially demolished building elements to suit future use.
- .11 Remove and dispose existing fixtures, accessories, fitments, equipment as indicated, required.
- .12 At end of each day's work, leave Work in safe and stable condition.
- .13 Protect interiors of parts not to be demolished from exterior elements at all times.
- .14 Demolish to minimize dusting. Keep materials wetted as directed by Departmental Representative.
- .15 Contain fibrous materials (e.g. Insulation) to minimize release of airborne fibres while being transported within facility.

3.5 REMOVAL FROM SITE

- .1 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.
- .2 Transport material designated for alternate disposal in accordance with applicable regulations.
- .3 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section includes:
 - .1 Rough carpentry materials and accessories.
- .2 Related Requirements:
 - .1 Section 00 43 22 – Unit Prices Form
 - .2 Section 01 22 00 – Unit Prices

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.
- .2 CSA International
 - .1 CSA B111, Wire Nails, Spikes and Staples.
 - .2 CSA O112.9, Evaluation of Adhesives for Structural Wood Products (Exterior Exposure).
 - .3 CSA O121, Douglas Fir Plywood.
 - .4 CSA O141, Softwood Lumber.
 - .5 CSA O151, Canadian Softwood Plywood.
 - .6 CSA O325, Construction Sheathing.
- .3 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2010.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Action Submittals:
 - .1 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Informational Submittals:
 - .1 Certificates:
 - .1 For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:

- .1 Information listed in AWP A M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWP A M2 applicable to specified treatment.
- .2 Moisture content after drying following treatment with water-borne preservative.
- .3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

1.4 QUALITY ASSURANCE

- .1 Provide quality control in accordance with Section 01 00 10 – General Instructions.
- .2 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .3 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.
- .4 Protect building materials from damage by:
 - .1 Fully covering stored materials.
 - .2 Elevating stored materials off ground.
 - .3 Disposing of materials with evidence of moisture damage.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .2 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect wood from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .3 Provide construction waste management in accordance with best practice.

Part 2 Products

2.1 SUSTAINABILITY REQUIREMENTS-

- .1 Composite wood products must not contain added urea-formaldehyde or resins containing urea-formaldehyde.

2.2 LUMBER MATERIAL

- .1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:

- .1 CAN/CSA-O141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .2 Dimension lumber:
 - .1 Light framing: S4S, species SPF, No. 1/No. 2 grade.
 - .2 Stud: S4S, species group Hem-Fir, stud grade.
- .3 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 S2S is acceptable.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.

2.3 PANEL MATERIAL

- .1 Plywood, OSB and wood based composite panels: to CSA O325.
- .2 Douglas fir plywood (DFP): to CSA O121, standard construction,
 - .1 Grade indicated.
 - .2 Good two side (Exterior Wood type EW3)
- .3 Canadian softwood plywood (CSP): to CSA O151, standard construction, grade indicated.
- .4 Fire-retardant: for plywood, to CSA O80.27, to provide:
 - .1 Flame Spread Classification: FSC 25 or less.
 - .2 Smoke developed of not more than: 25.

2.4 ACCESSORIES

- .1 General purpose adhesive: to CSA O112.9.
- .2 Nails, spikes and staples: to CSA B111.
- .3 Bolts: 12.5 mm diameter unless otherwise indicated, complete with nuts and washers.
- .4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
- .5 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001coating designation.
- .6 Nailing discs: flat caps, minimum 25 mm diameter, minimum 0.4 mm thick, sheet metal, formed to prevent dishing. Bell or cup shapes not acceptable.

- .7 Fastener Finishes
 - .1 Galvanizing: to ASTM A653, use galvanized fasteners for exterior work and pressure-preservative treated lumber.

Part 3 Execution

3.1 INDOOR AIR QUALITY

- .1 Reduce dust contamination by:
 - .1 Ensuring adjacent HVAC ducts are sealed prior to cutting. Provide cutting and patching in accordance with Section 01 00 10 – General Instructions.
 - .2 Collecting and bagging dust from tools
 - .3 Isolating cutting areas from adjacent workspaces
 - .4 Sweeping and/or vacuuming daily

3.2 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.3 PREPARATION

- .1 Treat surfaces of material with wood preservative, before installation.
- .2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.
- .3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
- .4 Treat material as follows:
 - .1 Wood cants, fascia backing, curbs, nailers, sleepers on roof deck.
 - .2 Wood furring on outside surface of concrete walls.

3.4 INSTALLATION

- .1 Comply with requirements of NBC, supplemented by the following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.

- .4 Install spanning members with "crown-edge" up.
- .5 Install furring and blocking as required to space-out work as required.
- .6 Align and plumb faces of furring and blocking to tolerance of 1:600.
- .7 Install furring and blocking as required to space-out and support facings, fascia, soffit, siding, electrical equipment mounting boards, and other work as required.
- .8 Install furring to support siding applied vertically where there is no blocking and where sheathing is not suitable for direct nailing. Align and plumb faces of furring and blocking to tolerance of 1:600.
- .9 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
- .10 Install fascia backing, nailers, curbs and other wood supports as required and secure using galvanized fasteners.
- .11 Install sleepers as indicated.
- .12 Use dust collectors and high quality respirator masks when cutting or sanding wood siding.

3.5 ERECTION

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.
- .3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 00 10 – General Instructions.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 00 10 – General Instructions.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction. Repair damage to adjacent materials caused by rough carpentry installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 00 43 22 – Unit Prices Form
- .2 Section 01 22 00 – Unit Prices

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM A755M, Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - .3 ASTM D1970, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
 - .4 ASTM D3462, Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
 - .5 ASTM D6757, specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing
 - .6 ASTM F1667, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-37.4-M89, Fibrated, Cutback Asphalt, Lap Cement for Asphalt Roofing
 - .2 CAN/CGSB-37.5-M89, Cutback Asphalt Plastic Cement
 - .3 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type
 - .4 CAN/CGSB-51.34-M86 AMD 1, Vapour Barrier Polyethylene Sheet, for Use in Building Construction
- .3 Canadian Roofing Contractors' Association (CRCA)
 - .1 CRCA Roofing Specification Manual - 2011
- .4 CSA International
 - .1 CSA A123.1/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
 - .2 CAN/CSA-A123.2-03(R2013), Asphalt-Coated Roofing Sheets.
 - .3 CAN3-A123.51-[M85(R2006)], Asphalt Shingle Application on Roof Slopes 1:3 and Steeper.

- .4 CAN3-A123.52-[M85(R2006)], Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3.
- .5 CSA A123.51-14, Asphalt Shingle Application on Roof Slopes 1:6 and Steeper.
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .6 National Research Council Canada (NRC)/Institute for Research in Construction (IRC) - Canadian Construction Materials Centre (CCMC)
 - .1 CCMC-2011, Registry of Product Evaluations.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 00 10 – General Instructions.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for asphalt shingles and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit proof of manufacturer's CCMC listing and listing number.
 - .3 Manufacturer's Instructions: provide to indicate special handling criteria, installation sequence and cleaning procedures.
 - .4 Submit 2 copies of WHMIS MSDS in accordance with Section 01 00 10 – General Instructions.
- .3 Samples:
 - .1 Submit duplicate samples of full size specified shingles.

1.4 ENVIRONMENTAL AND PROJECT REQUIREMENTS

- .1 Apply each part of the roofing system only when surfaces are clean and dry.
- .2 Cover walls and other surfaces in the vicinity of hoisting apparatus (when used) with heavy canvas or other suitable protective material. Any damage caused by this contract shall be repaired to match the original materials and appearance at no cost to the owner.
- .3 Conduct operations so as to leave deck exposed for the minimum period of time. Protect the work area as required to prevent water infiltration or environmental damage to building interior.
- .4 Maintain all site equipment in good working order.
- .5 Maintain one copy of manufacturers' application instructions at the project site.

1.5 QUALITY ASSURANCE

- .1 Provide all primary roofing products including shingles, underlayment, and leak barrier by a single manufacturer.
- .2 Installer Qualifications: where required for extended limited warranty coverage, the installer must be approved or otherwise authorized by manufacturer to install all roofing products to be installed on this project. Work is to be executed only by those skilled to perform it expeditiously and who has been responsible for satisfactory installations similar to that specified during a period of at least the immediate three (3) years.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Remove only in quantities required for same day use.
 - .3 Store and protect asphalt shingles from nicks, scratches, and blemishes.
 - .4 Replace defective or damaged materials with new.

1.7 EXTRA STOCK MATERIALS

- .1 Submit maintenance materials in accordance with Section 01 00 10 – General Instructions.
- .2 All unused shingles remain property of Departmental Representative.

1.8 WARRANTY

- .1 Manufacturer's Warranty: Provide manufacturer's standard warranty document executed by authorized company official covering performance and finish, including wind uplift and algae.
 - .1 Warranty Period, Materials: lifetime from date of Substantial Completion.
 - .1 First 15 years: 100 percent of the material supply and installation labour.
 - .2 Warranty Period, Wind Uplift: 15 years from date of Substantial Completion.
 - .1 Wind speed to 177 k/h (110 m/h).
 - .3 Warranty Period, Algae: No growth for 10 years from date of Substantial Completion.

Part 2 Products

2.1 MANUFACTURERS

- .1 Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications All roofing components shall be provided from a single manufacturer, unless otherwise noted.
 - .1 IKO
 - .2 Building Products of Canada
 - .3 GAF
 - .4 Certainteed
 - .5 Owens Corning
- .2 This Specification is based on Products by IKO. Comparable Products from manufacturers listed herein will be accepted provided they meet requirements of this Specification.

2.2 MATERIALS

- .1 Asphalt shingles: to CSA A123.1/A123.5. and ASTM D3462
 - .1 Type: Architectural, pattern rectangular, 2 sealant bands.
 - .2 Exposure: 152 mm.
 - .3 Colours: as selected from manufacturer's standard range by Departmental Representative.
 - .4 Texture: as selected from manufacturer's standard range by Departmental Representative.
- .2 Ice Dam & Eave Protection Underlayment:
 - .1 CSA A123.22 and ASTM D1970, self-adhering, self-sealing bituminous membrane.
 - .2 Minimum 914mm wide.
- .3 Roofing Underlayment
 - .1 Synthetic Underlayment: Inorganic felt underlayment conforming to ASTM D6757, specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing
- .4 Asphaltic Cement:
 - .1 Plastic cement: to CAN/CGSB-37.5 and ASTM D4586, Type I or II.
 - .2 Lap cement: to CAN/CGSB-37.4 and ASTM D3019, non-asbestos-fibered, Type III.
- .5 Nails: to ASTM F1667, of galvanized steel, sufficient length to penetrate 19 mm into deck.
- .6 Step Flashing: Hot-dip galvanized steel sheet, complying with ASTM A653/A653M.

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- .7 Drip and Rake Edge Flashing:
- .1 Restricted flatness steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A755M.
 - .2 Aluminum sheet, min. 0.48 mm
 - .3 Surface: smooth.
 - .4 Exposed coil-coated finish: Silicone-modified polyester comprised of epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of not less than 0.005 mm for primer and 0.02 mm for topcoat.
 - .5 Colour: as selected from manufacturer's standard range by Departmental Representative.
- .8 Static Roof Air Vent:
- .1 CSA certified - Plastic Type B roof vents, for installation on sloping surfaces.
 - .2 Construction: Injection molded from pure, high grade polypropylene with premium UV inhibitor additives. Engineered to resist denting, peeling, extreme heat and cold impact to -38 °C.
 - .3 Colour: as selected from manufacturer's standard range by Departmental Representative.
- .9 Continuous Ridge Air Vent:
- .1 Lo-Omnirroll shingle over roll out ridge vent comprised of injection molded, high impact co-polymer with elastomer and UV stabilization additives.
 - .2 Internal baffles and drainage openings easily deflect and direct away extreme weather. TriFold flexibility for use on full range of pitches. Code regulated insect grill.
- .10 Plumbing Roof Flange:
- .1 Thermoplastic base, Ethylene Propylene Diene Terpolymer (EPDM) self-sealing collar
 - .2 Flange to accommodate roof angles from flat to 45 degrees.
 - .3 CSA Certified
 - .4 Colour: as selected from manufacturer's standard range by Departmental Representative.
- .11 Conduit Roof Flange:
- .1 CSA Certified
 - .2 Colour: as selected from manufacturer's standard range by Departmental Representative.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate are acceptable for asphalt shingles installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 REMOVAL OF EXISTING ROOFING

- .1 Remove existing roofing, flashings and underlay, and expose sheathing of roof.
- .2 Withdraw existing shingle and flashing nails, set those which break off. Leave surfaces free from dirt and loose material.
- .3 Departmental Representative to inspect roof sheathing.
- .4 Remove portion of sheathing affected by fungal or insect attack as directed by Departmental Representative.
- .5 Replace cut out portions of sheathing with sheathing of equal sectional dimensions, and specified grade. Seat each end on rafter, with 25 mm bearing, and secure to rafter.

3.3 APPLICATION

- .1 Install roofing products and accessories in accordance with manufacturer's instructions and in proper relationship with adjacent construction.
- .2 Install drip edge along eaves, overhanging 12 mm, with minimum 50 mm flange extending onto roof decking.
 - .1 Nail to deck at 400 mm on centre.
- .3 Install bottom step flashing (soaker base flashing) interleaved between shingles at vertical junctions.
- .4 Install ice dam & eave protection underlayment along eaves and valleys.
 - .1 Apply eave protection from the edge of the roof to a line not less than 300 mm inside the inner face of the exterior wall for roof slopes 1:3 or greater.
 - .2 For roof slopes 1:6 to 1:3, the eave protection shall extend from the edge of the roof to a line not less than 900 mm inside the inner face of the exterior wall.
 - .3 To install underlayment in a valley, first centre a 914 mm wide strip of underlayment in the valley.

- .5 Install one ply of roofing underlayment over entire roof deck surface not already covered by eave protection.
 - .1 Apply underlayment over properly prepared, clean and dry decks.
 - .2 Lay underlayment parallel to the eaves, starting at eaves or eave protection, lapping each course minimum 50 mm over underlying course.
 - .3 Secure underlayment with the minimum number of nails to hold it securely in place before shingles are applied. If two or more pieces are required to continue a course, overlap ends minimum 100 mm.
 - .4 Stagger end laps from those in a preceding course by minimum 150 mm.
- .6 Install asphalt shingles in accordance with CSA A123.1/A123.5-05.
- .7 Install roof vents per manufacturer's instructions. Unobstructed vent area shall be not less than 1/300 of the insulated ceiling area. Install additional static roof vents if existing ventilation is insufficient.
- .8 Install plumbing and conduit flanges and other roofing accessories per manufacturer's instructions.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 00 10 – General Instructions.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 00 10 – General Instructions.
- .3 Waste Management: Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by asphalt shingles installation.

END OF SECTION