Part 1 General

1.1 RELATED REQUIREMENTS

.1 The list of work sections in this division is indicative and non-exhaustive. It does not exclude the works described in the other specification sections, shown in the drawings or necessary for the execution of the works in keeping with overall intent of the plans.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 74 21 - Construction/Demolition Waste Management and Disposal

.5 Section 04 05 10 - Common Work Results for Masonry.

.6 Section 04 05 19 - Masonry Reinforcement and Connectors.

.7 Section 03 30 00 - Cast-in-Place Concrete.

.8 Section 05 12 23 - Structural Steel for Buildings.

1.2 UNIT PRICES

.1 Items of work shown in unit price table will be paid based on actual quantities measured on site and unit prices stated in the Tender Form. Refer to schedule included in the present section for description of anchor types.

.2 For anchors not shown in unit price table, base price on quantities indicated and as specified in article entitled Schedule in this section.

1.3 REFERENCES

.1 Canadian Standards Association (CSA International).

.1 CSA-A371-04, Masonry Construction for Buildings.

.2 CSA A82.2-M78 Methods of Sampling and Testing Brick.

.2 American Society for Testing and Materials (ASTM International).

.1 ASTM A276-06, Standard Specification for Stainless Steel Bars and Shapes.

.2 ASTM E96/E96M-05, Standard Test Methods for Water Vapor Transmission of Materials.

.3 ASTM C109/C109M-99, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.

.4 ASTM C39/C39M-03, Standard Test Method for Compressive Strength of Cylindrical Concrete.

.5 ASTM C666/C666M-03, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Material Safety Data Sheets (MSDS).

.4 British Standards Institute (BSI).

.1 EN772 part 22, 1999, Methods of Test for Masonry Units – Part 22: Determination of freeze-thaw resistance of Clay Masonry Units.

1.4 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures, and Section 04 05 10.

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet, including material properties and related testing standards.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets.

.3 Submit test data from recognised testing facility showing anchoring system has demonstrated ability to provide 40 year freeze-thaw durability as per ASTM C666.

.3 Shop Drawings:

.1 Submit drawings showing design of anchor system, including design calculations.

.2 Drawings to be stamped and signed by qualified professional engineer registered in Province of Quebec, and retained by anchor supplier.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

1.5 QUALITY ASSURANCE

.1 Submit test reports and certificates in accordance with Section 01 45 00 – Quality Control.

.2 Test Reports: provide certified test reports showing compliance with specified performance characteristics and physical properties.

.3 Certificates: provide product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 QUALITY ASSURANCE – MOCK-UPS

.1 Construct mock-ups in accordance with section 01 45 00 – Quality Control and Section 04 05 10 – Common Work Results for Masonry.

.2 Install full scale mock-up of each anchor type in location designated by the Representative of the Ministry. Testing shall take place before any masonry work proceeds.

.1 Test anchors to failure for design loads less or equal to 5.0 kN; to 1.3 times design load for other anchors.

.2 Dismantle masonry adjacent to anchor to show extent of grout penetration. Acceptable criteria for bonding to parent material: greater than or equal to 90% of potential contact area. Re-install mock-up until specified value is achieved.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate containers on-site for recycling in accordance with Waste Management Plan.

1.8 DESIGNATED SUPPLIER

.1 Retain the services of Cintec Canada as supplier of materials described in this section

Part 2 Products

2.1 MATERIALS

.1 Grout anchors: proprietary assembly comprising steel anchor body and grout retaining device designed for filling with non-shrink grout.

.2 Anchor body: stainless steel to ANSI type S304. Test criteria ASTM A276.

.3 Grout: to meet the following performance characteristics:

.1 99% cementitious content: portland cement and/or lime materials.

.2 Compressive strength: greater than 17.5 MPa. Test standard ASTM C109 or ASTM C39.

.3 Freeze Thaw Durability: 40 years to ASTM C666 or EN772 part 22.

.4 Acceptable Materials:

.1 Masonry restoration anchors as supplied by CINTEC CANADA LTD.

.2 Alternative Materials: Approved by addendum in accordance with Instructions to Tenderers.

2.2 FABRICATION

.1 Fabricate anchor sizes to details indicated.

.2 Anchor types: as specified in article entitled Schedule.

.3 Anchor lengths: determine sizes on site prior to fabrication.

Part 3 Execution

3.1 INSTALLATION

.1 Install anchors using individuals trained and certified by approved anchor supplier.

.2 Core-drill anchor holes using diamond drilling process. Rotary percussive drilling not permitted. Coring must be directional, straight, plumb and true, unless noted otherwise, by applying constant pressure. Vibration caused by coring is not acceptable.

.3 In areas with suspected asbestos contamination, drilling operation shall be dust-free. Use rubber boot around drill bit at wall face and remove dust generated with vacuum equipment having HEPA filter.

3.2 WEAK SUBSTRATES

.1 Where weak substrates prevent adequate bonding of grout, relocate and groove or undercut anchors as directed by Representative of the Ministry.

.2 Cost of work requiring specified adjustments resulting from weak substrates will be paid by Representative of the Ministry.

3.3 FIELD TESTING

.1 Proof test all installed anchors designed for unfactored design loads of 5.0 kN or less to 100% of the specified unfactored design loads.

3.4 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.5 SCHEDULE

.1 Anchor types and quantities : (see following page).

.1 Stainless steel threaded rods, fully or partially grouted , anchors type A and B.

Type	Anchor diametre	Hole diametre	Total length	Socked/ grouted length	Hardware	Design load, unfactored	Location	Drawing(s)	Quantity
	mm	mm	mm	mm.		kN			
B1	20	65	8500	8500	Plain ends	30	Grid 5	R8	2
A1	15	50	5000	5000	Plain ends	20	Grid22	R9	1
A1	15	50	3160	3160	Plain ends	20	Grid22	R9	2
A1	15	50	4800	4800	Plain ends	20	Grid22	R9	1
A1	15	50	4500	4500	Plain ends	20	Grid22	R9	1
A1	15	50	3700	3700	Plain ends	20	Grid22	R9	1
A1	15	50	3200	3200	Plain ends	20	Grid22	R9	1
A3	15	50	6800	6800	Plain ends	20	Grid 6	R10	2
A3	15	50	2400	2400	Plain ends	20	Grid 6	R10	1
A3	15	50	7600	7600	Plain ends	20	Grid 6	R10	1
A3	15	50	8400	8400	Plain ends	20	Grid 6	R10	1
A3	15	50	3200	3200	Plain ends	20	Grid 6	R10	1
A1	15	40	2400	2400	Plain ends	20	East wall Room 317	R12, R15	3
A1	15	40	2400	2300	100 mm exposed threads , nuts and bevel washers	20	Central Tour , west	R18	6

Type	Anchor diametre	Hole diametre	Total length	Socked/ grouted length	Hardware	Design load, unfactored	Location	Drawing(s)	Quantity
A2	15	40	930	830	100mm exposed threads, with nut washers and 100 x 100 x 12 stainless steell end plates	20	Pediments, north wall	R19	39
A4	15	40	3200	3200	Plain ends	20	Level 3 east , det 3/R14	R3	3
A4	15	40	2400	2400	Plain ends	20	Ground floor east , det. 1/R14	R4	4
A4	15	40	2200	2200	Plain ends	20	Ground Floor east , det 1/R14	R5	10
A4	15	40	1800	1800	Plain ends	20	Ground floor east , det. 2/R14	R5	5
A4	15	40	1800	1800	Plain ends	20	Level 1 west	R6	5
A4	15	40	2200	2200	Plain ends	20	Level 1 east , det 1/R14	R7	10
A4	15	40	1 800	1 800	Plain ends	20	Level 2 east , det. 2/R14	R7	5
A4	15	40	2400	2400	Plain ends	20	det 1/R14 , supplementary anchors to be located by the architect		6

END OF SECTION