

## **PART 1 – GENERAL**

### **1.1 Related Sections**

- .1 Section 11 66 00 - Athletic Play Equipment
- .2 Section 32 37 00 – Exterior Site Furnishings

### **1.2 References**

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D1751-99, Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.
- .3 Canadian Standards Association (CSA)
  - .1 CAN/CSA-A23.1-00, Concrete Materials and Methods of Concrete Construction.
  - .2 CAN/CSA-A23.2-00, Methods of Test for Concrete.
  - .3 CAN/CSA-A3000-98-A5-98, Portland Cement.
  - .4 CAN/CSA-G30.5-M1983(R1998), Welded Steel Wire Fabric for Concrete Reinforcement.
  - .5 CAN/CSA-G30.18-M92(R1998), Billet-Steel Bars for Concrete Reinforcement.

### **1.3 Submittals**

- .1 Shop Drawings
  - .1 Submit drawings prepared in accordance with plans and details to clearly show size, shape, location and all necessary details of reinforcing, saw cuts and jointing.
  - .2 Submit drawings showing formwork and falsework design to: CAN/CSA-A23.1.

### **1.4 Coordination**

- .1 Layout and installation of concrete pads to be coordinated with installation of exercise equipment and furnishings.
- .2 Coordination to be done through the shop drawing process for installation and verified required dimensions are met.

### **1.5 Waste Management and Disposal**

- .1 Separate and recycle waste materials.

- .2 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Waste Management Plan.
- .3 Place materials defined as hazardous or toxic in designated containers.
- .4 Ensure emptied containers are sealed and stored safely.
- .5 Use trigger operated spray nozzles for water hoses.
- .6 Designate cleaning area for tools to limit water use and runoff.

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## **PART 2 - PRODUCTS**

### **2.1 Materials**

- .1 Portland cement with 40% fly ash replacement (where feasible): to CAN/CSA-A3000-A5
- .2 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .3 Welded steel wire fabric: to CAN/CSA-30.5.
- .4 Premoulded joint filler:
  - .1 Bituminous impregnated fibreboard: to ASTM D1751.
- .5 Joint sealer/filler: grey to CAN/CGSB-19.24, Type 1, Class B.
- .6 Other concrete materials: to CAN/CSA-A23.1/A23.2.

### **2.2 Mixes**

- .1 Proportion concrete in accordance with CAN/CSA-A23.1, Alternative 1 to give following quality for all concrete.
  - .1 Cement:
    - .1 Type 10 Portland cement with 50% supplementary cementing materials fly ash and slag (where feasible).
  - .2 Minimum compressive strength at 28 days: 32 MPa

- .3 Class of exposure: to CAN/CSA-A23.1, Table 11.
- .4 Nominal maximum size of coarse aggregate: 20mm to CAN/CSA-A23.1.
- .5 Slump at time and point of discharge: 80 to 100mm
- .6 Air content: A23.1.
- .7 Chemical admixtures: following admixtures in accordance with ASTM C494, type, quantity, water reducing strength increasing air entraining.

## **PART 3 - EXECUTION**

### **3.1 Protection**

- .1 Prevent damage to buildings, landscaping, curbs, sidewalks, trees, fences, roads and adjacent property. Make good any damage.
- .2 Provide access to building at all times. Coordinate paving schedule to minimize interference with normal use of premises.

### **3.2 Subgrade**

- .1 Ensure that subgrade preparation conforms to levels and compaction required allowing for installation of granular base.

### **3.3 Granular Base**

- .1 Sub-base minimum thickness: as indicated on drawings.
- .2 Spread and compact crushed stone or gravel in uniform layers not exceeding 100mm compacted thickness.
- .3 Compact base to a density of not less than 95% Standard Density in accordance with ASTM D698.
- .4 Shape and roll alternately to obtain smooth, even and uniformly compacted granular base and ensure conformity of grades with finish surface.
- .5 Apply water as necessary during compaction to obtain specified density. If granular base is excessively moist, remove it and install more granular material to rid it of sponginess.
- .6 In areas not accessible to rolling equipment, compact to specified density with approved mechanical tampers.
- .7 Ensure top of granular base does not exceed plus or minus 5mm of finished grade less combined thickness of granular laying course plus surface course.

### **3.4 Reinforcement**

- .1 Install reinforcement as per shop drawings and details.

### **3.5 Construction**

- .1 Do cast-in-place concrete work in accordance with CAN/CSA-A23.1.

### **3.6 Finishes**

- .1 Formed surfaces exposed to view: as specified by consultant in accordance with CAN/CSA-A23.1.
- .2 Pavements, pads and exposed site concrete:
  - .1 Screed to plane surfaces and use wood floats.
  - .2 Provide round edges and joint spacings using standard tools.
  - .3 Trowel smooth to provide lightly brushed non-slip finish.

### **3.7 Sandblast Finish (exercise pad only)**

- .1 Apply light sandblast finish at concrete pavement pad for the exercise equipment.
- .2 Perform sand blasting at least 72 hours after placement of concrete. Coordinate with formwork construction, concrete placement schedule, and formwork removal to ensure that surfaces to be blast finished are blasted at the same age for uniform results.
- .3 Abrasive blast corners and edge of patterns carefully, using back-up boards, to maintain uniform corner or edge line.
- .4 Depths of Cut: Use an abrasive grit of proper type and gradation to expose aggregate and surrounding matrix surface to match approved samples as follows:
  - .1 Brush Sand Blast Finish: Remove cement matrix to expose face of fine aggregate; no reveal.
  - .2 Light Sand Blast Finish: Expose fine aggregate with occasional exposure of coarse aggregate; maximum 1/16-inch reveal.
- .5 Surface Continuity: Perform sand blast finishing in as continuous an operation as possible, utilizing the same work crew to maintain continuity of finish on each surface or area of work. Maintain patterns of variances in depths of cuts as indicated.
- .6 Construction Joints: Use technique acceptable to the Consultant to achieve uniform treatment of construction joints.
- .7 Protection and Repair:
  - .1 Protect adjacent materials and finishes from dust, dirt, and other surface or physical damage during abrasive blast finishing operations. Provide protection as required and remove from site at completion of the work.
  - .2 Repair or replace other work damaged by finishing operations.

- .3 Clean-up: Maintain control of concrete chips, dust, and debris in each area of the work. Clean up and remove such material at the completion of each day of operation. Prevent migration of airborne materials by use of tarpaulins, wind breaks, and similar containing devices.

### **3.8 Control Joints**

- .1 Cut and form control joints in slabs on grade at locations indicated, in accordance with CAN/CSA-A23.1 and install specified joint sealer/filler.

### **3.9 Expansion and Isolation Joints**

- .1 Install premoulded joint filler in expansion and isolation joints full depth of slab flush with finished surface, as per approved shop drawings.
- .2 Install caulking as per approved shop drawings.

### **3.10 Curing**

- .1 Cure and protect concrete in accordance with CAN/CSA-A23.1.
  - .1 Do not use curing compounds where bond is required by subsequent topping or coating.

### **3.11 Site Tolerances**

- .1 Concrete floor slab finishing tolerance in accordance with CAN/CSA-A23.1.

### **3.12 Field Quality Control**

- .1 Concrete testing: to CAN/CSA-A23.2 by testing laboratory designated and paid for by Contractor.

### **3.13 Disposal of Materials**

- .1 Dispose of materials, not designated for salvage, off site. Contractor is responsible for all permits and costs.

**END OF SECTION**