

PART 1- GENERAL

1.1 REFERENCES

- .1 ASTM
 - .1 ASTM C309 Specification for Liquid Membrane Forming Compounds for Curing Concrete.
 - .2 ASTM E1155M Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-25.20, Surface Sealer for Floors.
 - .2 CGSB 51 GP 51M Polyethylene Sheet for Use in Building Construction.
- .3 CSA International
 - .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

1.2 ACTIONS AND INFORMATIONAL SUBMITTALS

- .1 Submit submittals in accordance with Section 01 33 00.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and data sheets for concrete finishes and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 ENVIRONMENTAL REQUIREMENTS

- .1 Work area:
 - .1 Make work area water tight protected against rain and detrimental weather conditions.
- .2 Temperature:
 - .1 Maintain ambient temperature of not less than 10 degrees C from 7 days before installation to at least 48 hours after completion of work and maintain relative humidity not higher than 40% during same period.
- .3 Moisture:
 - .1 Ensure concrete substrate is within moisture limits prescribed by manufacturer.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.
 - .3 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials in accordance with Section 01 74 21.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Curing Compound:
 - .1 ASTM C309, Type 2.
 - .2 Combination curing and sealing compound: ASTM C309; Clear, non-yellowing compound.
- .2 Floor Hardener:
 - .1 Nonmetallic and non-coloured floor hardener: Premixed blend of mineral aggregates and densifying agents, and Portland cement, shake on type; Durag Premium by Sternson Ltd.; Diamag 7 by Sika Canada Inc., Maximent by Master Builders Technologies, Ltd.; Surfex by Euclid Admixture Canada, Inc.; or Quartz Tuff by Dayton Superior Canada Limited.
 - .3 Surface Sealer:
 - .1 Clear, liquid surface hardener and dustproofer; Florseal by Sternson Ltd; Sealhard 400 by Sika Canada Inc., Floor Seal by Euclid Admixture Canada, Inc., or Day Chem Sure Hard (J 17) by Dayton Superior Canada Limited.
 - .4 Wet Curing materials:
 - .1 Non staining waterproof curing paper, burlap, or canvas coverings.

PART 3 - EXECUTION

3.1 DEFECT REPAIRS

- .1 General
 - .1 Provide smooth form finish in accordance with CSA A23.1 for architectural concrete.
 - .2 Remove face formwork as soon as practical to facilitate repair of surface defects. Surface defects include formwork tie holes, bugholes with nominal diameter or depth greater than 6 mm, honeycomb and defective concrete, fins,

- projections, irregularities, offsets, spalled corners, and other defects.
- .3 Avoid damaging corners and keep edges sharp.
 - .2 Formwork Tie Holes:
 - .1 Cut formwork ties 25 mm from surface of concrete.
 - .2 Make edges of depressions sharp.
 - .3 Fill depressions with pre-blended non shrink non-ferrous grout of same colour as the concrete for exposed concrete surfaces.
 - .3 Irregularities:
 - .1 Grind smooth fins, projections, irregularities, and offsets, including those at visible construction joints.
 - .2 Where irregularities and offsets cannot be remedied by grinding, chip concrete surface sufficiently deep and apply thoroughly bonded pre-blended non shrink non-ferrous grout in similar procedure for repair of honeycomb and defective concrete.
 - .4 Surface Depressions:
 - .1 Fill bugholes, and other surface depressions with a sand cement mortar to match the surface of surrounding concrete.
 - .5 Spalled Corners:
 - .1 Use repair materials of similar appearance and strength as the surrounding concrete to reconstruct corner to match adjacent corners.
 - .6 Honeycomb and Defective Concrete:
 - .1 Do not repair honeycomb and defective concrete until reviewed by Departmental Representative and permission granted to proceed with the repair work.
 - .2 Remove honeycomb and defective concrete down to sound concrete with edges slightly undercut or perpendicular to the surface. Remove a minimum depth of 25 mm. No feather edges are permitted.
 - .3 Pre-dampen patch area.
 - .4 Use pre-blended non shrink non-ferrous grout of same colour as the concrete for exposed concrete surfaces.
 - .5 Use bonding agents in patching work.
 - .6 Patch surface slightly higher than the surrounding concrete.
 - .7 Wet cure patches to equivalent of 10 days minimum.
 - .8 When patched surface has hardened, rub surface with carborundum brick to a true surface, free from streaks, discolourations, and other

imperfections, to match flush with surrounding concrete.

3.2 CONCRETE FINISHING

- .1 Concrete Finish:
 - .1 Use only rough plywood formwork.
 - .2 Finish tolerances are for architectural concrete as appearance is of critical importance.
 - .3 Use procedures as noted in CSA A23.1/A23.2 to remove excess bleed water during wet finish operations. Ensure surface of concrete is not damaged during bleed water removal.
 - .4 On completion thoroughly wash the surfaces with clean water.
- .2 Related Unformed Surfaces:
 - .1 Finishing, for unformed surfaces, shall commence after the bleed water has disappeared and when concrete has stiffened sufficiently to prevent the working of excess mortar to the surface. No additional water shall be used to facilitate finishing
 - .2 Provide a flat board screed finish for tops of piers, walls or buttresses, horizontal offsets, and similar unformed surfaces occurring in units cast in forms to a texture consistent with that specified for the formed surface unless some different finish is specified elsewhere.
- .3 Underside Elevated Slab Finish:
 - .1 After forms are removed grind off projections and patch defective areas.
- .4 Slabs or Floor Surfaces:
 - .1 Provide a flat board screed finish. Troweled edges will not be permitted.
 - .2 Finish tolerances are for architectural concrete as appearance is of critical importance.
 - .3 Ensure slabs and floor surfaces are sealed prior to applying the flat board screen finish.
- .5 Water Passages
 - .1 For exposed surfaces and surfaces that will conduct low velocity water flow (unformed roadway sections). After the concrete has hardened sufficiently, the concrete finish shall be floated by hand or machine sufficiently only to produce a uniform surface free from screed marks.
 - .2 Finish tolerances are for architectural concrete as appearance is of critical importance.

- .6 Construction Joints
 - .1 Green cut concrete surfaces to receive subsequent concrete lifts to a 5 mm amplitude 24 hrs following initial concrete placement.

3.3 CURING CONCRETE

- .1 Refer to 03 30 00 Cast-in-place Concrete for curing requirements.

END OF SECTION