PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Structural Drawings:
   1. SN-1 thru SN-2, General Notes.
   2. S-1 thru S-7, Building Floor Plans.
   3. SP-1, Concrete Repair Types.
   4. SD-1, ICRI Details

B. Specification Sections

1.2 SUMMARY

A. This Section specifies materials and procedures for repair of defective Parking structure end bay (1-2 & 7-8) surface depressions (causing ponding) and other than positive drainage situations.

B. The procedures specified in this Section shall constitute minimum requirements. Where manufacturer's required procedures are more stringent than those contained within this Section, the manufacturer's procedures shall govern.

C. WORK INCLUDED

   1. Furnish all necessary materials, labor, and equipment required to:

      a. Correct poor drainage or surface depressions where water ponds on balcony slab surfaces. Comply with ICRI Standards and appropriate recommendations of Materials Manufacturer's.

1.3 REFERENCES

Comply with provisions of the following codes, specifications and standards, current editions, except where more stringent requirements are shown or specified:

A. ACI 301 Specifications for Structural Concrete Buildings.

B. ACI 318 Building Code Requirements for Reinforced Concrete.

C. ACI 347R Guide to Formwork for Concrete.

D. ASTM C 31 Standard Practice for Making and Curing Concrete Test Specimens in the Field.

E. ASTM C 33 Standard Specification for Concrete Aggregates.

F. ASTM C 579 Compressive Properties of Mortar.

G. ASTM C 882 Bond Strength of Epoxy to Hardened Concrete.

H. ASTM D 638 Tensile Properties of Mortar.

I. ASTM D 648 Deflection Temperature of Mortar.

J. ASTM D 732 Shear Strength of Mortar.

K. ASTM D 790 Flexural Properties of Mortar.

J. NACE 6 Surface Preparation of Concrete.

1.4 UNIT PRICES

A. Work shall be performed on the on the basis of time and material invoicing, based upon square footage of ponding/sloping correction material placed.

1.5 PROJECT CONDITIONS

A. Follow manufacturer's recommendations regarding ambient weather conditions and other additional installation information.

1.6 SUBMITTALS

A. Product Data: Include material descriptions, chemical composition, physical properties, test data, and mixing and application instructions.

1. Include Material Safety Data Sheets, if applicable.

B. Samples: Cured samples of patching materials.

C. Product Certificates: Signed by manufacturers certifying that products furnished comply with requirements and are recommended by manufacturers for uses indicated.

D. MATERIAL SUPPLIER FIELD REPRESENTATIVE REQUIREMENTS:

Preferably, the Material Supplier Manufacturer's Site Representative would be a Florida Registered Professional Engineer. At the very least, the person should be an employee of the manufacturer (not an employee of a distributor) and possess a minimum of 5 years experience with that particular manufacturing company. The Manufacturer's Field Representative shall be present at the Pre-Bid Meeting, the Pre-Construction Meeting and attend at least one Progress Meeting per week while repairs are underway.

1.7 QUALITY ASSURANCE

A. Apply all repair materials in accordance with the manufacturer's recommendations for storage, preparation, mixing, placement and curing.

B. Follow manufacturer's recommendations regarding curing considerations and other additional quality control information.

C. Products shall be installed exclusively by manufacturer approved applicators.

D. Installer Qualifications:
In addition to other requirements in Division 1 Section "Quality Requirements," retain installers that employ workers trained and approved by the manufacturer to apply specified materials.

F. Manufacturer Qualifications:
In addition to other requirements in Division 1 Section "Quality Requirements," manufacturers shall have factory-trained representatives who are available for consultation and Project site inspection at no additional cost.

G. Source Limitations:
Obtain material required under this Section through one source from a single manufacturer:

1. Sika Corporation.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with type and name of products and manufacturers.

B. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.

C. Store cementitious materials off the ground, under cover, and in a dry location.

D. Store aggregates, covered and in a dry location, where grading and other required characteristics can be maintained and contamination avoided.

E. Products shall remain in unopened containers until ready for use.

F. Where mixing of components is required, use complete pre-measured units.

1.9 SPECIAL GUARANTEES

A. Provide minimum five year, non-prorated labor and material warranty, issued by CONTRACTOR and product manufacturer. CONTRACTOR'S warranty shall include both materials and labor. Manufacturer's warranty may include material only. CONTRACTOR shall obtain and provide maximum available manufacturer's warranty.

B. Other than the duration of the warranty, correction of defective items shall be as contained in Article 13 of the General Conditions.

1.10 CAST IN PLACE CONCRETE

In the event the cost of repairs will exceed the cost of demolishing and re-pouring a
given member, such new work shall be in accordance with Section 03300 CAST IN PLACE CONCRETE, attached for that particular purpose. Excess cost of such work to be paid by Change Order subject to Owner acceptance of proposal.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Under this specification section, only Sika Products, have been indicated.

A. Products for use in specific repair types.

B. Products: Subject to compliance with requirements, provide one of the following:

1. Epoxy Bonding Agent:

    a. Sika Corporation; Sikadur 31 Lo-Mod LV Gel, Low modulus, low-viscosity, epoxy resin binder.

2. Contractor shall be responsible to verify that the overlay materials are fully compatible with the subsequent coatings and with final Pedestrian Traffic Coating System.

2.2 MISCELLANEOUS MATERIALS

A. Aggregate: 20-30 or 20-40 Mesh, clean washed, oven dried sand.

2.5 MIXES

A. Mix products in clean containers according to manufacturer's written instructions.

    1. Add clean silica sand to products only as recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Provide at least 24 hours advanced notification to Engineer of requested Site Observation Visit.

3.2 SUBSTRATE SURFACE PREPARATION

A. Concrete surface to receive Epoxy/Sand transition material must be sound, solid concrete without any sign of concrete deterioration. Surfaces must be clean and dry. Remove any and all dust, waxes, grease, curing compounds and any other material or coatings that could negatively affect bonding with Epoxy.

B. Concrete surface shall cleaned and prepared for Epoxy /Sand Transition material by sand-blasting, bead blasting or grinding.

C. Concrete substrate shall be tested for moisture vapor transmission prior to application of Epoxy/Sand.

D. Concrete Restoration/Repair materials must have cured for at least 21 days Before application of Epoxy/Sand.

3.3 MIXING AND PLACEMENT

A. All repair mortars shall be mixed according to the manufacturer's instructions using a low speed drill and mixing paddle in an acceptable sized container.

B. Mix only such quantity of material that can be placed within the timeframe (and pot-life) published by the material manufacturer.

C. Epoxy/Sand Mortar shall be prepared by slowly mixing six parts of specified aggregate (oven dried 20-30 or 20-40 Mesh sand) to one part epoxy. Mix components until a uniform, lump-free consistency is achieved.

D. CONTRACTOR shall coordinate observation of repairs by manufacturer's representative. Manufacturer's representative shall periodically observe repairs in progress not less than once per week while repairs are underway, and shall observe initial surface preparation and installation of repair materials.

3.4 PLACEMENT

A. Application of manufactured repair materials shall be accomplished according to the manufacturer's recommendations.

B. Do not apply Epoxy/Sand mortar until substrate temperature is at least 40 degrees (F) and rising.

C. Prime substrate with neat mixed epoxy resin.

D. Place Epoxy/Sand mortar by trowel before prime coat looses tackiness.

3.5 FINISHING AND CURING

A. Finish with finishing trowel.

B. Increase overlay material thickness adjacent to door thresholds and at base of walls and reduce thickness to form slope and positive downward drainage away from walls and doorways.

C. Feather edges of Epoxy/Sand transitions at outer edge of each layer to blend with the adjacent concrete deck surface.

D. Infill deck depressions (areas of ponding). Place Epoxy/Sand mortar material at center of depression and work material outward toward the perimeter edges of the depression. Screed surface to remove excess material and finish flush with the surrounding deck surfaces.

E. Prevent all contact with completed overlay surface for three hours after completion of work (or at least until finished surface is tack-free).

F. Prevent foot traffic on overlays for five hours after completion of work.

END OF SECTION 03940.