

## Guide Specification

### Elastizell Hybrid Roof Deck Guide Specification

#### SECTION 035216 – Lightweight Insulating Concrete Roof Decks

#### SECTION 07220 - Roof & Deck Insulation – Lightweight Insulating Concrete Roof Insulation

##### PART 1- GENERAL

- 1.1 Description: Provide an insulating hybrid concrete roof deck system as shown on the Drawings and as needed for a complete and proper installation.
- 1.2 Applicator qualification: The Applicator shall be approved by the Manufacturer's Agent – Elastizell Canada Inc.
- 1.3 Certification: When required and upon completion, a certificate from the Manufacturer and Applicator that states the materials and installation methods follow current practices.
- 1.4 Product data: Prior to start of the work, provide installation procedures, fire ratings, and wind uplift data for this application.

##### PART 2 – PRODUCTS

- 2.1 Hybrid insulating concrete is a slurry of portland cement, water, expanded mineral aggregate or vermiculite aggregate and Elastizell pre-formed foam to produce an insulating concrete of a specific density range.
- 2.2 Portland Cement: Portland cement shall comply with ASTM C150 Type 10, 20 or 30.
- 2.3 Water: Use potable water.
- 2.4 Aggregate: The addition of 1-2 bags (4 cubic / feet / bag) of expanded mineral aggregate may be added to the mixture. The expanded mineral aggregate, vermiculite, shall comply with ASTM C332, Group I.
- 2.5 Fiber: The addition of 1# / cyd of Zell-Crete Fibers by Elastizell Canada Inc. to improve tensile strength, reduce drying shrinkage cracking and help ensure a uniform roof deck.
- 2.6 Preformed Foam: Elastizell JLE Foam concentrate by Elastizell Canada Inc. shall comply with ASTM C869 "Standard Specification for Foaming Agents Used in Making Preformed Foam for Cellular Concrete" when tested in accordance with ASTM C796.
- 2.7 Physical properties shall meet the following criteria:

	<u>Mix A (1 bag)</u>	<u>Mix B (2 bags)</u>
Cast Density	42-48 pcf	48-54 pcf
Minimum Compressive Strength	200 psi	250 psi
Roofing Membrane Types	nailed base sheet	nailed base sheet

- 2.8 Insulation Board: A minimum 1.0 pcf Zell-Board EPS insulation board shall conform to ASTM C578 Type I, in thickness shown on the Drawings. Zell-Board EPS board shall have bond holes equal to approximately 3% of the board area. The board is placed in a bond coat and topped with a minimum 2" of insulating concrete. The Zell-Board EPS may be stair-stepped or of constant thickness. Zell-Board EPS Board by Elastizell Canada Inc.

- 2.9 Patching Material: Cell-Patch by Elastizell Canada Inc.
- 2.10 Expansion Joints: Expansion joints are necessary when there are expansion joints in the structural system and per CRCA recommendations. Control joint filler is not necessary at vertical protrusions.
- 2.11 Reinforcement: Keydeck Mesh Style No. 2160-2-1619 may be required for some fire rated systems over steel deck.

### PART 3 – EXECUTION

- 3.1 Inspection: Prior to starting work, any unsatisfactory conditions of related trades shall be corrected by others.
- 3.2 Installation: Install the insulating hybrid concrete roof deck system in accordance with current practices to insure proper drainage, the required insulation value, and the published fire and uplift ratings.
- 3.3 Preparation: General Contractor shall clear deck of all standing water, dirt, debris, ice, etc. Prepare the roof grades prior to placing the insulating concrete roof deck system.
- 3.4 Mixing and placing: Insulating concrete is mixed in approved equipment and pumped into place. EPS bond coats, double casting, and two-density casting are acceptable methods of installation.
- 3.5 Finishing: Screed the insulating concrete to the proper thickness and slope. The surface shall be free of ridges and sharp projections prior to installation of the roofing membrane.
- 3.6 Patching: Cell-Patch by Elastizell Canada Inc. shall be used to make any repairs to concrete. It will also be used around the drains and at any curb and penetration modifications.
- 3.7 Weather: Insulating concrete may be placed when temperatures are 0°C and rising. If colder temperatures are anticipated, the Applicator shall take suitable precautions for the installation of an acceptable deck. Coordinate the roofing membrane application with the insulating concrete installation to avoid prolonged exposure of the roof deck.
- 3.8 Testing: Check the cast density at the point of placement and adjust the mix to obtain the required cast density. A minimum 4 test specimens (3"x6" cylinders) shall be sampled at the point of placement daily or for each 100 cubic yards of material placed. Protect samples from damage and temperature extremes and test according to ASTM C796. Compressive test samples shall not be oven-dried prior to testing. Manufacturer shall conduct and report test results.
- 3.9 Completion: For nailed base sheet applications, roofing membrane installation may typically begin ~3 days after the roof deck is cast or after a nail pull test is conducted with a minimum 40# withdrawal resistance. This facilitates deck curing and reduces drying shrinkage.

Protect the insulating concrete roof deck from construction traffic. The roof deck should not be left exposed for longer than 5 to 7 days. The LWIC Applicator cannot be responsible for rain (moisture) entering the roof deck after the deck is cast and finished. The general contractor and roofing contractor are responsible for removing excess water in the system and verifying deck preparedness for roofing. Zell-Fast 1.7 fasteners by Elastizell Canada Inc. shall be used to attach base sheets to the roof deck. Consult the roofing membrane manufacturer for their recommended nailing pattern for securing the roofing membrane to the roof deck system.