

## Supplementary data

### Using Recycled Coal Ash from Thermal Power Plants and Rice Husk Ash as Alternative Aggregates for the Manufacturing of Terrazzo Tiles

**Table S1.** Physical-mechanical properties of crushed stone

| No. | Parameters                                | Values  |
|-----|---|---------|
| 1   | Average density, g/cm <sup>3</sup>        | 2.67    |
| 2   | Compacted bulk density, g/cm <sup>3</sup> | 1.67    |
| 3   | Content of flaky grains, %                | 1.5     |
| 4   | Content of weak rocks, %                  | 0.0     |
| 5   | Water absorption, %                       | 0.9     |
| 6   | Fineness modulus                          | 2.0-2.2 |

**Table S2.** Physical-mechanical properties and chemical composition of PCB40 cement

| No | Parameters                                | Value |
|----|---|-------|
| 1  | Fineness                                  |       |
|    | Residue by sieving (0.09mm), %            | 0.2   |
|    | Specific surface area, cm <sup>2</sup> /g | 3850  |
| 2  | Cement strength, N/mm <sup>2</sup>        |       |
|    | 3 days                                    | 32.0  |
|    | 28 days                                   | 52.5  |
| 3  | Volume stability, mm                      | 0.5   |
| 4  | Density, g/cm <sup>3</sup>                | 3.1   |
| 5  | SO <sub>3</sub> content, %                | 2.6   |

**Table S3.** Technical specifications of PP fibers

| Parameters                 | Values                 |
|----------------------------|------------------------|
| Diameter                   | 0.05 mm                |
| Length                     | 10 mm                  |
| Density                    | 0.91 g/cm <sup>3</sup> |
| Melting temperature        | 160-170°C              |
| Fracture elongation        | 15-20%                 |
| Tensile strength           | >500 MPa               |
| Acid and alkali resistance | high                   |

**Table S4.** Technical specifications of iron oxide pigment

| No. | Parameters                                     | Value |
|-----|--|-------|
| 1   | Fe <sub>2</sub> O <sub>3</sub> content, % w.t. | ≥ 96  |
| 2   | Oil absorption, g/100g                         | 15-25 |
| 3   | Residue by sieving (0.325 mm), %               | ≤ 0.3 |
| 4   | Humidity, %                                    | ≤ 1.0 |
| 5   | pH   | 5.8   |
| 6   | Density, g/cm <sup>3</sup>                     | 0.74  |
| 7   | Relative color durability, %                   | 97    |

**Table S5.** Technical specifications of Terrazzo T-120 hydrostatic-press machine

| No | Parameters                        | Values   |
|----|-----------------------------------|--|
| 1  | Capacity                          | 7.5 kW   |
| 2  | Average cycle                     | 30 s/ brick piece                                      |
| 3  | Hydraulic cylinder pressing force | 80-100 tons (depending on pressure)                    |
| 4  | Control system                    | Semi-auto, PLC control system                          |
| 5  | Brick pick-up system              | Horizontal rotation                                    |
| 6  | Hydraulic motor                   | 7.5 Hp, 1450 rounds/ min                               |
| 7  | Hydraulic pump                    | Flow: 18cc/round, max pressure: 240 kg/cm <sup>2</sup> |
| 8  | Machine weight                    | 2.4 tons   |
| 9  | Production capacity               | 700-1,000 piece/ batch                                 |
| 10 | Dimension of Terrazzo tiles       | 200×200 mm, 300×300 mm, 400×400 mm, 500×500 mm         |