

CONCRETE FINISHES:

- CON-03
- ARCHITECTURAL GRADE VISUAL QUALITY CONCRETE
1. SCOPE & FINISH STANDARD
- SURFACE CLASS: CON-03 (ARCHITECTURAL). THE SURFACE MUST BE DENSE, UNIFORM IN COLOUR, AND FREE FROM GROUT LOSS, HONEYCOMBING, OR PHYSICAL DAMAGE.
- PHYSICAL CHARACTERISTICS:
- BLOWHOLES: MAXIMUM DIAMETER 3mm; FREQUENCY NOT TO EXCEED 0.1% OF THE SURFACE AREA.
 - STEPI/ABRUPT CHANGES: MAXIMUM 3mm AT FORMWORK JOINTS.
 - FLATNESS: MAXIMUM 3mm DEVIATION OVER A 3m STRAIGHT EDGE.
2. MIX DESIGN (COASTAL EXPOSURE XS(XS3))
- TO PREVENT CHLORIDE INGRESS WHILE MAINTAINING A HIGH-END VISUAL TONE:
- BINDER: USE A BLEND OF CEM I + 50% GGBS (GROUND GRANULATED BLAST-FURNACE SLAG). THIS PROVIDES A LIGHTER 'OFF-WHITE' AESTHETIC AND SUPERIOR RESISTANCE TO SEA-SALT CORROSION COMPARED TO PURE OPC.
 - W/C RATIO: STRICTLY CAPED AT 0.40 TO ENSURE A LOW-POROSITY 'CLOSED' SURFACE.
 - AGGREGATES: NON-REACTIVE, WELL-GRADED CRUSHED LIMESTONE OR GRANITE. MARINE-DREGGED AGGREGATES ARE PROHIBITED TO AVOID CHLORIDE CONTAMINATION.
 - ADMITTANCES: HIGH-RANGE WATER REDUCERS (POLYCARBOXYLATES) TO ENSURE HIGH WORKABILITY WITHOUT INCREASING WATER CONTENT.
3. FORMWORK & LINERS
- PANEL MATERIAL: NEW, NON-ABSORPTIVE, FILM-FACED BIRCH PLYWOOD OR STEEL SHUTTERS. REUSED PANELS MUST BE INSPECTED FOR 'GHOSTING' OR SCARRING.
 - JOINTING: ALL JOINTS MUST BE SEALED WITH COMPRESSED FOAM GASKETS OR STRUCTURAL TAPE TO PREVENT GROUT LEAKAGE, WHICH CAUSES 'SANDY' EDGES.
 - TIE-HOLES: SYMMETRICAL GRID LAYOUT. USE STAINLESS STEEL TIE-CONES OR ARCHITECTURAL PLASTIC PLUGS. RECESSED 20mm AND PATCHED WITH A MATCHING MORTAR.
 - RELEASE AGENT: CLEAR, NON-STAINING CHEMICAL RELEASE AGENT APPLIED IN A THIN, UNIFORM FILM. AVOID OIL-BASED AGENTS THAT CAUSE YELLOWING OR SURFACE MOTTLING.
4. EXECUTION & PROTECTION
- COMPACTION: HIGH-FREQUENCY INTERNAL VIBRATION, 'RE-VIBRATION' OF THE TOP 500mm IS REQUIRED TO ELIMINATE AIR POCKETS (BUGHOLES) THAT MIGRATE TO THE SURFACE.
 - CURING: USE CLEAR, NON-DEGRADABLE CURING MEMBRANES OR POLYTHENE SHEETING FOR AT LEAST 7 DAYS. RAPID DRYING IN COASTAL WINDS WILL CAUSE 'CRAZING' (FINE SURFACE CRACKS).
 - POST-STRIPPING TREATMENT: APPLY A SILANE/SILOXANE HYDROPHOBIC IMPREGNATION (INVISIBLE) TO THE CURED SURFACE. THIS CREATES A 'BEADING' EFFECT AGAINST SEA SPRAY WITHOUT CHANGING THE CONCRETE'S MATTE APPEARANCE.
5. BENCHMARKING
- MOCK-UP: A REFERENCE PANEL (MINIMUM 1m X 1m) MUST BE CAST ON-SITE USING THE APPROVED MIX AND FORMWORK. ONCE APPROVED, THIS SERVES AS THE 'CONTROL SAMPLE' FOR ALL SUBSEQUENT POURS.

NOTE:

WALLS AND COLUMNS IN THE LOGIA AND THE LOGIA SOFFIT ARE CONCRETE FINISH CON-3

NOTE:

REFER TO DWG'S:
CCWF-CCC-ZZ-ZZ-SC-A-8030_SCHEDULE OF CORTEN COLUMNS
CCWF-CCC-ZZ-ZZ-DR-A-7002_CORTEN COLUMN DETAILS
FOR CORTEN EFFECT CLADDING SIZING & DETAILS

NOTE:

Dimensions not to be scaled from drawing.
For any discrepancies found consult with design office.
Copyright © - Cork County Council Architect's Dept.
This drawing to be read in conjunction with all the Specification Documents.

CONCRETE FINISHES:

CON-01 EXPOSED AGGREGATE CONCRETE WALL FINISH (VERTICAL) SPECIFICATION

CAST-IN-SITU CONCRETE WALLS WITH AN EXPOSED AGGREGATE FINISH ACHIEVED VIA FORM-APPLIED CHEMICAL RETARDER AND HIGH-PRESSURE WATER WASHING.

CONCRETE MIX: MINIMUM STRENGTH C30/37 (AS PER STRUCTURAL ENGINEERS SPECIFICATION). USE A CONSISTENT SOURCE OF CEMENT AND AGGREGATES TO AVOID COLOUR BANDING.

AGGREGATE: 10-20mm ROUNDED RIVER STONE. AGGREGATE SHOULD BE WELL-GRADED TO ENSURE A 'DENSE' LOOK ONCE EXPOSED.

SURFACE RETARDER: A HIGH-TACK, MEDIUM ETCH CHEMICAL RETARDER DESIGNED SPECIFICALLY FOR VERTICAL FORMWORK.

FORMWORK: NEW, CLEAN, NON-ABSORPTIVE PHENOLIC-FACED PLYWOOD OR STEEL SHUTTERS. ALL JOINTS MUST BE SEALED WITH FOAM TAPE TO PREVENT GROUT LEAKAGE.

RETARDER APPLICATION: APPLY THE RETARDER EVENLY TO THE INTERNAL FACE OF THE SHUTTERS USING A ROLLER OR SPRAY AT THE MANUFACTURER'S RECOMMENDED RATE. ALLOW TO DRY COMPLETELY (TYPICALLY 1-4 HOURS) BEFORE FIXING REINFORCEMENT OR POURING CONCRETE.

POURING: PLACE CONCRETE IN 300MM-500MM LAYERS. VIBRATE THOROUGHLY TO ENSURE AGGREGATE IS PUSHED AGAINST THE SHUTTER FACE, BUT AVOID TOUCHING THE SHUTTER WITH THE VIBRATOR POKER TO PREVENT 'SCOURING' THE RETARDER.

STRIPPING: REMOVE SHUTTERS BETWEEN 12 AND 24 HOURS AFTER THE POUR, DEPENDING ON AMBIENT TEMPERATURE. DO NOT LEAVE SHUTTERS ON TOO LONG, OR THE RETARDER WILL LOSE EFFECTIVENESS.

POWER WASHING: IMMEDIATELY UPON STRIKING THE SHUTTERS, WASH THE 'SOFT' SURFACE PASTE AWAY USING A HIGH-PRESSURE WATER JET (MINIMUM 2,000-3,000 PSI).

CONSISTENCY: WORK FROM THE TOP DOWN. KEEP THE NOZZLE AT A CONSISTENT DISTANCE (APPROX. 300mm) AND ANGLE TO ENSURE AN EVEN DEPTH OF EXPOSURE ACROSS THE ENTIRE WALL.

CLEAN UP: WASH ALL SLURRY AWAY FROM THE BASE OF THE WALL BEFORE IT HARDENS TO PREVENT STAINING THE FOOTING OR SURROUNDING PAVEMENT. ENSURE FULLY DETAILED CWP IN PLACE TO PREVENT ANY RUN OFF INTO WATER COURSES.

WASH DOWN WITH A 10% MURIATIC ACID WASH TO REMOVE ANY RESIDUAL CEMENT FILM FROM THE SURFACE. APPLY A CLEAR, BREATHABLE UV-STABLE SILANE/SILOXANE SEALER ONCE THE CONCRETE HAS CURED (MIN. 28 DAYS) TO PROTECT FROM FREEZE-THAW AND ORGANIC GROWTH.

A 1M X 1M SAMPLE PANEL MUST BE PRODUCED USING THE EXACT MIX, RETARDER, AND WASHING PRESSURE INTENDED FOR THE FINAL WORK. THIS SAMPLE SHALL SERVE AS THE BENCHMARK STANDARD FOR COLOR, AGGREGATE DENSITY, AND DEPTH OF ETCH.

CON-02 POLISHED CONCRETE WALL FINISH (HORIZONTAL & CHAMFERED) SPECIFICATION

HORIZONTAL AND CHAMFERED ELEMENTS OF CAST-IN-SITU CONCRETE WALLS, BENCHES AND PLANTERS TO BE MECHANICALLY DIAMOND GROUND AND POLISHED TO ACHIEVE A SMOOTH, HIGH LUSTER MATTE SHEEN AND DURABLE FINISH.

MIX DESIGN: MINIMUM C30/37 (OR 4,000 PSI) WITH A HIGH CEMENT CONTENT TO ENSURE A DENSE MATRIX.

CONSISTENCY: THE WALL TOP MUST BE CAST MONOLITHICALLY WITH THE WALL OR BE PERFECTLY LEVEL.

COMPACTION: HIGH-FREQUENCY VIBRATION IS CRITICAL AT THE TOP OF THE POUR TO ELIMINATE 'BUG HOLES' AND AIR POCKETS THAT WOULD APPEAR AS PITS AFTER GRINDING.

INITIAL FINISH: TROWEL THE SURFACE TO A SMOOTH, FLAT FINISH. DO NOT 'OVER-TROWEL' OR BURNISH.

MECHANICAL GRINDING & POLISHING SEQUENCE

THE CONTRACTOR SHALL USE PLANETARY OR HAND-HELD DIAMOND GRINDERS WITH INTEGRATED HEPA VACUUM DUST EXTRACTION.

STEP 1: INITIAL GRIND (COARSE)

GRIT: 30/40 GRIT METAL-BOND DIAMONDS.

GOAL: REMOVE THE SURFACE LAITANCE (CREAM) TO EXPOSE THE DESIRED LEVEL OF AGGREGATE 1 'E' SALT AND PEPPER.

STEP 2: TRANSITIONAL GRIND (MEDIUM)

GRIT: 80 GRIT METAL-BOND FOLLOWED BY 120 GRIT CERAMIC/HYBRID BOND.

GOAL: REMOVE THE VISIBLE SCRATCHES LEFT BY THE COARSE DIAMONDS.

STEP 3: GROUTING (PORE FILLING)

APPLY A POLYVINYL ACETATE (PVA) OR EPOXY-BASED GROUT OVER THE ENTIRE SURFACE. WORK THE GROUT INTO ALL PINHOLES AND MICRO-PITS USING A STEEL TROWEL. ALLOW TO CURE BEFORE PROCEEDING.

STEP 4: HONING (FINE)

GRIT: 200 GRIT RESIN-BOND DIAMONDS.

GOAL: REMOVE EXCESS GROUT AND BEGIN THE 'HONING' PROCESS FOR A MATTE SHEEN.

CHEMICAL TREATMENT & SEALING

DENSIFICATION: APPLY A LITHIUM SILICATE DENSIFIER (E.G., PROSOCO LS OR HUSQVARNA HIPERHARD) AFTER THE 200-GRIT STAGE. THIS REACTS WITH THE FREE LIME TO HARDEN THE SURFACE AND INCREASE STAIN RESISTANCE.

STAIN PROTECTION (SEALER):

APPLY TWO COATS OF A SOLVENT-BASED PENETRATING MICRO-SEALER (E.G., SR2 OR PENTREAT 244).

FINISH: NATURAL/MATTE

REQUIREMENT: THE SEALER MUST BE UV-STABLE AND NON-YELLOWING FOR OUTDOOR/EXPOSED APPLICATIONS.

EDGES AND DETAILS

ARRIS/CHAMFER: ALL EXTERNAL EDGES MUST BE GRIND TO A 2MM-3MM CHAMFER OR 'PENCIL ROUND' TO PREVENT CHIPPING.

A 1M X 1M SAMPLE PANEL MUST BE PRODUCED USING THE EXACT MIX, RETARDER, AND WASHING PRESSURE INTENDED FOR THE FINAL WORK. THIS SAMPLE SHALL SERVE AS THE BENCHMARK STANDARD FOR COLOR, AGGREGATE DENSITY, AND DEPTH OF ETCH.

2 Elevation_West

Scale 1: 50 @A1

3 Elevation_East

Scale 1: 50 @A1

1 Elevation_North

Scale 1: 50 @A1

4 Elevation_South

Scale 1: 50 @A1