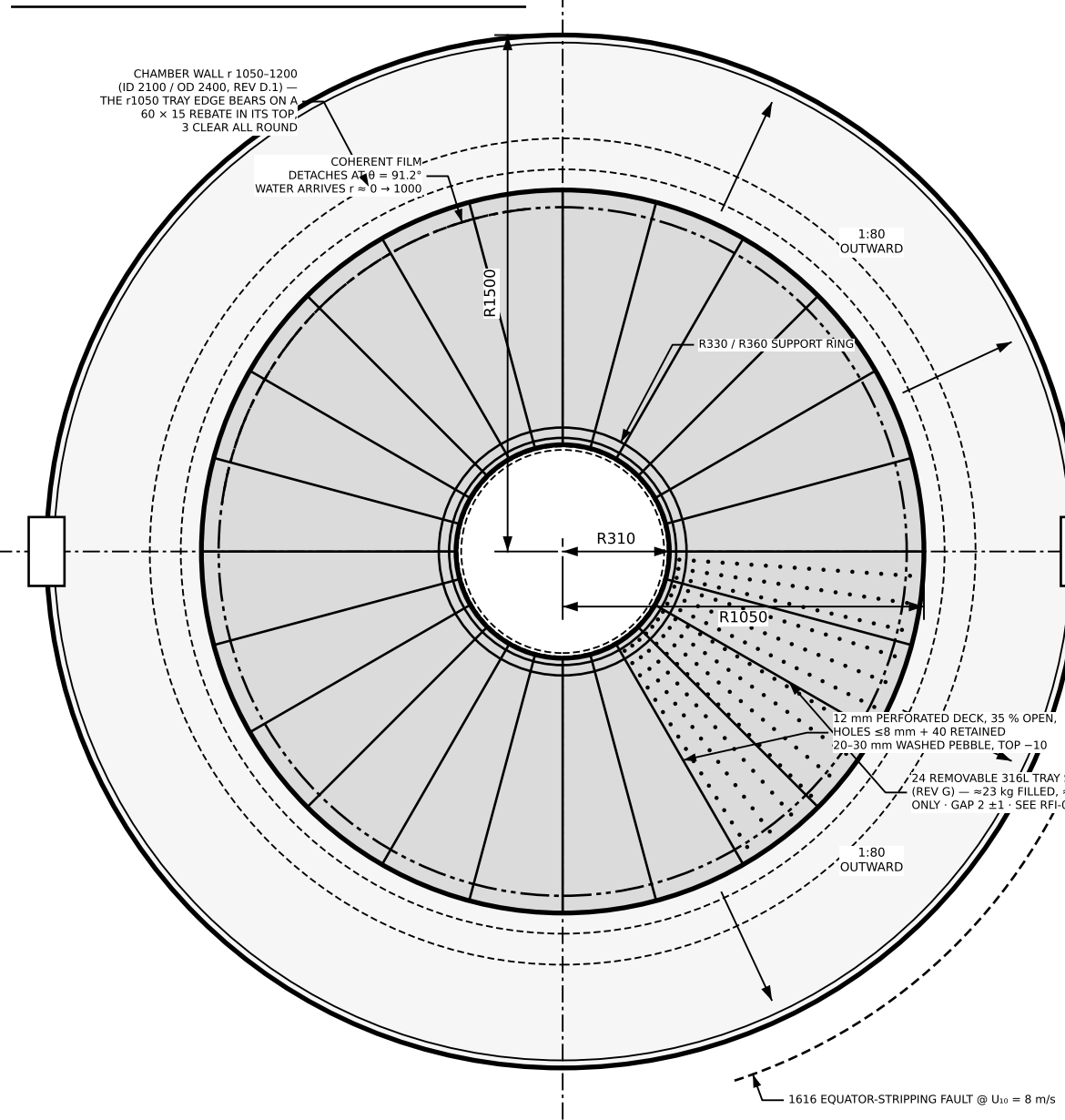


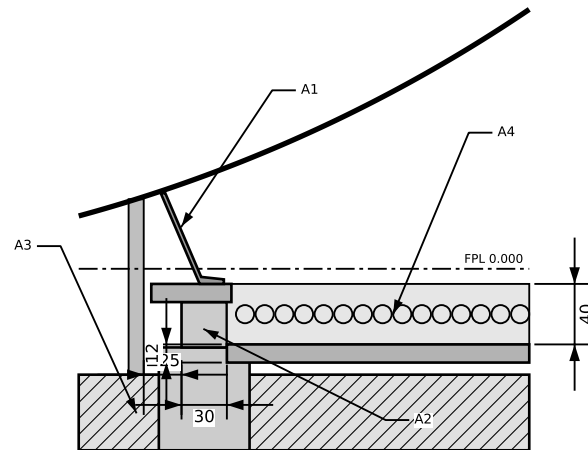
COLLECTION AND CATCHMENT PLAN · SCALE 1:20



NOTES

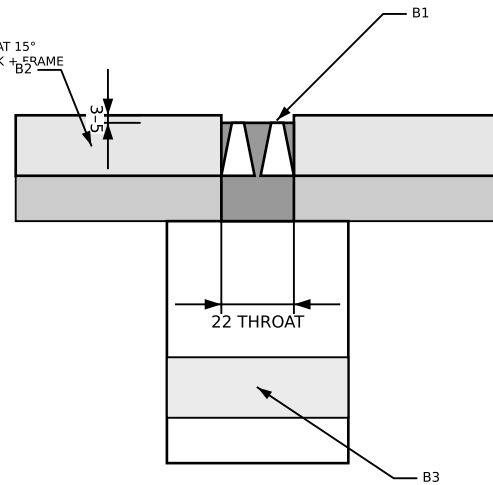
1. COLLECTOR ANNULUS $r \pm 310 \rightarrow 1050$ ADOPTED (REV D.1.). The coherent inertial film transitions at $\theta = 91.2^\circ$, and below the equator the film ADHERES and drips down the underside (Bond number on thickness 0.016), so water arrives across $r = 0 \rightarrow 1000$ mm. At $r = 900$ the equatorial band would have landed on paving falling OUTWARD to a stormwater slot — straight out of the recirculation loop, which the water balance cannot survive.
2. PAVING IS GRADED OUTWARD 1:80 FROM $r = 1050$ TO $r = 1500$ — NOT INWARD. An inward fall routes ~ 8.6 m² of foot dirt, coral sand, sunscreen, cleaning chemicals and any soil or fertiliser straight into a Legionella-controlled recirculating loop.
3. The perimeter slot at $r = 1500$ discharges to SOAKAWAY / STORMWATER, NOT to the reservoir. It is a secondary drift and storm catch, not a primary collector.
4. Twin 8 mm is mandatory: a single 12 mm slot is a toe hazard on a barefoot spa deck.
5. Design flow through the trays = 1.000 L/s fountain + the storm term on the PROJECTED catchment ($\pi R^2 = 3.14$ m² = 0.087 L/s at 100 mm/h) — rain catchment is projected, not wetted, area. Free-draining by three orders of magnitude.
6. The 1616 mm equator-stripping case at $U_{10} = 8$ m/s lands marginally OUTSIDE $r = 1500$. The Wind Stage 2 trip shuts the feature down before that condition is sustained; the residual is wetting of the deck beyond the slot, not loss of collection. RAISED AS AN OBSERVATION.
7. Retained pebble shall be NON-CALCAREOUS — coral gravel dissolves into a soft, LSI-negative RO loop and re-deposits CaCO₃ on the mirror.
8. COMMISSIONING IS A HOLD POINT: observe and record the actual detachment angle and the arrival distribution, and confirm all arrival is inside $r = 1050$. BEFORE THE PEBBLE IS PLACED. Observe the film below the equator for SEPARATION — the failure to watch for is film separation, not crown jetting. Wet-out boost is 1.20 L/s for 5 min; DO NOT EXCEED 1.20 L/s (We = 2 at the contaminated $\sigma = 0.050$ N/m).
9. MANUAL HANDLING (REV D.1, RFI-05 ADOPTED). The collector is 16 SEGMENTS OF 15° , ≈ 0.132 m² each: ≈ 23 kg FILLED (TWO-PERSON LIFT), ≈ 14 kg DECK + FRAME AFTER DECATING — DECAT BEFORE LIFT IS THE PROCEDURE. A filled segment is AT THE 25 kg single-person limit, so it may be lifted lifted by one person with a two-handed symmetrical grip at waist height. OR — and this is preferred for routine work, for any overhead or twisted posture, and for anyone not assessed for the limit — DECAT THE PEBBLE FIRST and lift the ≈ 14 kg deck + frame alone. 6 segments would have been 67 kg per lift and were never liftable, at $r1050$ or at the earlier $r900$ (47 kg).
10. A barrier / exclusion procedure applies whenever trays are lifted — a 740 wide $\times$ 380 deep open annulus at grade in a guest area.

DETAIL A — COLLECTOR BUILD-UP · SCALE 1:5



- A1 TWO-PART 316L REVELAR COLLAR, SITE-SCRIBED 4 ±2 TO THE AS-BUILT SHELL — BELOW THE 8 mm FINGER PROTR. LIFTS WITH THE INNER TRAY.
- A2 INNER SUPPORT RING R 330-360, PAD → -10. NOT AT r = 310 — THAT WOULD SEAL THE SKIRT DRAINS.
- A3 SKIRT R 295-305 WITH 8 × 60 × 40 DRAIN SLOTS, SILLS NOTCHED 15 BELOW THE FLANGE TOP.
- A4 40 RETAINED 20-30 mm WASHED PEBBLE ON A 12 mm PERFORATED DECK (35 % OPEN, HOLES ≤ 8 mm) . TOP -10 ±1 . OUTER EDGE r1050 ON A 60 × 15 BEARING REBATE IN THE CHAMBER WALL TOP, 3 CLEAR ALL ROUND (SH06).
- ACCESS UNIT x2 AT ≤6 m CTRS

DETAIL B — SLOT DRAIN $r = 1500$ · SCALE 1:5



- B1 ACO BRICKSLOT HEEL-RESISTANT TWIN 8 mm STAINLESS, K100 — SET 3-5 BELOW THE ADJACENT PAVING. A SINGLE 12 mm SLOT IS A TOE HAZARD ON A BAREFOOT SPA DECK.
- B2 PAVING 40 ON 30 SAND BEDDING, GRADED OUTWARD 1:80 FROM $r = 1050$.
- B3 → SOAKAWAY / STORMWATER. NOT THE RESERVOIR.

SLIP RESISTANCE

1. DIN 51097 CLASS C (24") WITHIN $r = 1500$ — the continuously wetted zone, including the pebble-tray deck. CLASS B (18") BEYOND.
2. Equivalently PTV ≥ 36 WET TO B5 7976 with slider 55, TESTED WET ON THE ACTUAL SPECIMEN — not on a manufacturer's generic sample.
3. A WET-TESTED SAMPLE PANEL SHALL BE APPROVED BEFORE ORDER, and the installed surface RE-TESTED AT HANDOVER (C14).
4. ANY LATER SEALER, POLISH OR COATING VOIDS THE CLASSIFICATION.

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FILM DETACHMENT AND ARRIVAL – REVISED PHYSICS (REV D.1)

PARAMETER	VALUE	CONSEQUENCE
Coherent inertial film — transition	$\theta = 91.2^\circ$ from the top pole	Full force balance: centripetal demand $\leq$ gravity-
		normal support + capillary retention
At the equator, $\theta = 90^\circ$	film weight 3.356 Pa vs	A factor of 24. The reduced "We $\leq 2^\circ$ " form used
	0.142 Pa capillary retention	alone drops the gravity term and predicts
		detachment at 5° — obviously wrong
Bond number on film thickness	$Bo = \rho g \delta^2 / \sigma = 0.016$	Capillary length 2.69 mm against a 0.344 mm film
		— THE WATER DOES NOT FLY OFF
Regime below the equator	Adherent clinging rivulets	Runs and drips down the underside; water reaches
		grade distributed across $r = 0 \rightarrow 1000$ mm
COLLECTION BAND ADOPTED	$r = 310 \rightarrow 1050$ (3.162 m ²)	The outer band drips from near the equator
Near-ground wind drift, $U_{10} = 8$ m/s	9 mm	Immaterial to the collector radius
Equator-stripping fault, still air	1190 mm	Graded field to $r = 1500$
Equator-stripping fault, $U_{10} = 8$ m/s	1616 mm	Marginally outside $r = 1500$ — the Wind Stage 2
		trip precedes a sustained condition
Fine drift, ≤ 0.2 mm droplets	> 1500 mm	Only above $U_{10} \approx 6\text{--}8$ m/s (wind trip)

REVISED PHYSICS FINDING

SUPERSEDES REV C / REV D §5.1 AND §6.

The 150–165° shed window AND the ballistic landing-radius

table derived from it are DELETED. They assumed the film

leaves the surface as a free jet. It does not — it adheres

and drips. THE COLLECTOR OUTER RADIUS IS 1050, NOT 900.

COLLECTOR AND TRAY SCHEDULE

ITEM	SPECIFICATION
Annulus	$r\ 310 \rightarrow 1050 = 3.162\ m^2 \cdot \text{top } -10 \pm 1$
Segments	24 OFF at 15° (REV G — 16 gave 28.7 kg, 20 gave 27 kg with the frame as drawn), gap 2 ± 1 , tamper-resistant 316L socket screws, $\approx 0.132\ m^2$ each = $\approx 23\ kg$ FILLED / $\approx 14\ kg$ DECANTED. The $3.162\ m^2$ annulus totals $\approx 400\ kg$; 6 segments would be 67 kg per lift.
Deck	12 mm 316L perforated, 35 % open, holes $\leq 8\ mm$
Pebble	40 mm retained 20-30 mm washed, NON-CALCAREOUS
Outer bearing	Tray outer edge bears DIRECTLY on the chamber wall (r 1050-1200) at r 1050, on a 60×15 rebate, 3 CLEAR
Support ring	r 330-360, pad $\rightarrow -10$; $\geq 25\ mm$ clear to the skirt OD at r = 305 so the slots discharge freely
Reveal collar	Two-part 316L, SITE-SCRIBED $4 \pm 2\ mm$
Retention grille	Permanent 316L load-rated mesh sub-frame beneath the trays, tool-fixed (\$3.6 A7)
Tray design action	$5.0\ kN/m^2$ UDL (Cat. C3) + $3\ kN$ on 200×200 ; deflection $\leq L/360$; EN 1433 A15 min. NO SPHERE LOAD.
Face velocity	$1.08\ mm/s$ clean - $2.16\ mm/s$ at 50 % blocked
DN110 outlet	1:60, $n = 0.010 \rightarrow d/D\ 0.219$, $v\ 0.73\ m/s$, $\tau\ 2.21\ N/m^2$ — self-cleansing. Rodding eye + basket.

REV	DATE	DESCRIPTION	BY
D	2026-08-05	CONCEALED SKIRT ANCHORAGE, RESERVOIR + PLANT, PEBBLE COLLECTOR	NX
E	2026-08-20	REV D.2 ALIGNMENT + VISUAL QA CORRECTIONS	NX
F	2026-09-03	LOGO ENGRAVING ADDED (SH15); SHEET COUNT 14 -> 15	NX
G	2026-09-05	AUDIT CLOSE-OUT: CART 082 18, SLOT 24, 24 TRAYS, DN80	NX
G.2	2026-09-06	PART DRAWINGS SH30-38; SLOTS AZ22.5; DOUBLER R995	NX
G.3	2026-09-06	SH37 BRACKET, SH42 WELD MAP, P-16 BELLOW; IFF	NX

SPA FOUNTAIN — B7 SPA, MALDIVES

SPA-F-SH10 — COLLECTION AND CATCHMENT PLAN

DRAWN: NaXief Eng.		CHECKED: NX 2026-09-06	APPROVED: I. NAZEEF 2026-09-06	STATUS: IFF REV G.3
DATE: 2026-09-06	REV: G.3	UNITS: mm	SCALE: AS NOTED	A3 · SHEET 10/25

ISSUED FOR FABRICATION — REV G.3 · HOLD POINTS PER SH42

