



Hot Weather Concreting Quality Control Checklist

Sensor-supported checklist for hot weather concreting operations · Designed for use in conjunction with the vemaventuri sensor platform

Project information

Project		Pour date	
Element		Mix design	
Contractor		Concrete grade	

All sensor measurements must be logged in the vemaventuri IoT platform and exported as part of the project QA record. Stripping and loading decisions must be based on sensor data, not time-based schedules alone. Any deviation from this checklist must be documented with the responsible person's name and time stamp.

Checklist item	Measured value / remarks
1 Pre-pour: mix design and delivery	
1.1 w/c-ratio and mix temperature	
<input type="checkbox"/> w/c-ratio measured by sensor at truck discharge — every load <i>Vemaventuri SONO Hub</i>	
<input type="checkbox"/> Concrete temperature at delivery ≤ 35 °C (ACI 305.1-14 / EN 206) <i>Record: truck no. · time · temperature</i>	
<input type="checkbox"/> No unauthorised water addition beyond specified w/c ratio <i>ACI 305.1-14 §5.7 — confirm verbally and log</i>	
<input type="checkbox"/> Retarding or hydration-stabilising admixture correctly dosed <i>Confirm dosage rate with batching plant</i>	
<input type="checkbox"/> Transport time and agitation speed comply with specification	
1.2 Ambient conditions at time of pour	
<input type="checkbox"/> Ambient temperature recorded °C: _____	
<input type="checkbox"/> Relative humidity recorded %: _____	
<input type="checkbox"/> Wind speed assessed and evaporation rate calculated <i>Threshold: < 1.0 kg/m²/h (ACI 305R-20)</i>	
<input type="checkbox"/> Solar radiation / direct sun exposure assessed; shading measures in place if required <input type="checkbox"/> Yes <input type="checkbox"/> N/A	
<input type="checkbox"/> ACI 305R-20 evaporation nomograph or electronic calculator consulted	



2 Pre-pour: formwork and sensor setup

2.1 Formwork inspection

- Formwork designed for full hydrostatic head at the specified pour rate
Design pressure: _____ kN/m² (ACI 347 / DIN 18218)
- Formwork inspected — no damage, deformation, or inadequate bracing
- All ties, wedges, and clamps tightened
- Substrate joints sealed against grout loss

2.2 Sensor installation — vemaventuri system

- Pressure sensors mounted on formwork at peak-pressure zones
Sensor IDs: _____
- Temperature sensors embedded at core, mid, and surface depths
IDs: _____ / Depths: _____
- Compaction / void-detection sensors placed at congested reinforcement zones, pre-installed components, and pour-stop locations
IDs: _____
- All sensor connections and data transmission verified prior to pour
System status: Online
- Maturity calibration for this specific mix design loaded into monitoring platform
Mix designation: _____

3 During pour: placement and compaction

3.1 Placement execution

- Pour rate controlled within formwork design pressure limit
Actual rate: _____ m/h
- Concrete placed in layers ≤ 500 mm (standard internal vibration)
- Drop height controlled — no segregation risk
- Time between successive layers within initial set time for current temperature
Max allowed interval at current temperature: _____ min
- Pour sequence and direction consistent with formwork pressure design

3.2 Compaction — real-time sensor monitoring

- Vibrator insertion spacing $\leq 1.5 \times$ effective radius of action for current mix temperature
Effective radius at current temperature: _____ mm



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<input type="checkbox"/>	Each insertion vibrated until surface sheen — withdrawal rate \leq 80 mm/s	
<input type="checkbox"/>	Compaction sensor data reviewed in real time — all zones confirm adequate energy <i>Any zones flagging insufficient vibration? <input type="checkbox"/>No <input type="checkbox"/>Yes → action taken</i>	
<input type="checkbox"/>	Void-detection sensor data confirms no air pockets around reinforcement or pre-installed items <i>Any void alarms? <input type="checkbox"/>None <input type="checkbox"/>Resolved</i>	
<input type="checkbox"/>	Re-vibration applied immediately where sensor data indicates insufficient compaction <i>Before initial set only</i>	
3.3 Formwork pressure — real-time monitoring		
<input type="checkbox"/>	Pressure sensor readings monitored continuously throughout pour <i>Peak reading: _____ kN/m²</i>	
<input type="checkbox"/>	Pressure remains below design threshold at all times — no alert triggered <i><input type="checkbox"/>Confirmed <input type="checkbox"/>Pour paused (reason: _____)</i>	
<input type="checkbox"/>	Pour paused or rate reduced if pressure approaches design limit	
<input type="checkbox"/>	Any pressure anomaly logged with time stamp and corrective action	
4 Post-pour: curing and formwork stripping		
4.1 Curing — immediate measures		
<input type="checkbox"/>	Curing compound applied or wet curing started within 30 min of finishing <i>Curing method: _____</i>	
<input type="checkbox"/>	Exposed surfaces shaded or covered against solar heating	
<input type="checkbox"/>	Wind screens in place if wind speed > 5 km/h with elevated evaporation risk	
<input type="checkbox"/>	Curing maintained for specified duration and minimum temperature <i>Duration: _____ days / Min. temp: _____ °C</i>	
4.2 Temperature monitoring post-pour		
<input type="checkbox"/>	Core temperature monitored continuously — peak temperature logged <i>Peak: _____ °C at _____ h</i>	
<input type="checkbox"/>	Temperature differential between core and surface < 20 K (mass concrete elements) <i>Max ΔT recorded: _____ K</i>	
<input type="checkbox"/>	If ΔT approaches 20 K: additional insulation or surface heating applied	
4.3 Maturity-based stripping and loading		



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<input type="checkbox"/>	Stripping strength threshold defined in QA plan (e.g. 70 %) <i>Target maturity index: _____ °C·h</i>	
<input type="checkbox"/>	Maturity sensor data confirms stripping strength reached before formwork removal <i>Achieved maturity index: _____ °C·h</i>	
<input type="checkbox"/>	Stripping authorised by responsible engineer based on sensor data — not time alone <i>Authorised by: _____ Time: _____</i>	
<input type="checkbox"/>	Cube / cylinder results retained as secondary confirmation	

5 Documentation and traceability

<input type="checkbox"/>	w/c sensor records archived for all truck deliveries <i>File / reference: _____</i>	
<input type="checkbox"/>	Temperature and maturity logs exported and attached to pour record	
<input type="checkbox"/>	Formwork pressure profile archived — peak pressure confirmed within design limit	
<input type="checkbox"/>	Compaction and void-detection sensor logs archived	
<input type="checkbox"/>	Ambient condition records attached (temperature, humidity, wind)	
<input type="checkbox"/>	Pour start time, end time, and total volume placed recorded <i>Volume: _____ m³</i>	
<input type="checkbox"/>	All deviations, alerts, and corrective actions documented with time stamp	
<input type="checkbox"/>	Complete sensor data package handed over to structural engineer / client QA <i>Date: _____ Recipient: _____</i>	

Sign-off

Site engineer / responsible person Name: _____ Signature: _____ Date / Time: _____	QA / structural engineer of record Name: _____ Signature: _____ Date / Time: _____
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This checklist is part of the vemaventuri knowledge series. For sensor setup support and QA documentation visit vemaventuri.io or contact info@vemaventuri.io