

TECHNICAL PERMIT – CONCRETE CONSTRUCTION

NZS 3109:1997



This permit must be completed prior to any concrete construction taking place.

PROJECT:

STAGE:

ENSURE CONSTRUCTION DOCUMENTS being used are current, have been fully read and understood and are adhered to, including drawings, specification and contract notices.

REFERENCE DRAWINGS:

DATE: / /

CARRY OUT SUB-SURFACE PREPARATION – ensure concrete is cast against properly prepared permanent surfaces.

Note: Extra special care required for fluid retaining structures.

	YES	N/A
DPC in place/tanking	<input type="checkbox"/>	<input type="checkbox"/>
Construction joints prepared/scabbled	<input type="checkbox"/>	<input type="checkbox"/>
Sealant chases	<input type="checkbox"/>	<input type="checkbox"/>

	YES	N/A
Waterstops	<input type="checkbox"/>	<input type="checkbox"/>
Hydrophilic strips	<input type="checkbox"/>	<input type="checkbox"/>

ENSURE FALSEWORK or existing building or other structure is strong enough to support the weight of the wet concrete.

ENSURE MOULD (formwork) for the concrete is strong enough to support the vertical and horizontal pressures exerted by the wet concrete and finished (including the oil film) so that it will provide the concrete finish standard required.

	YES	N/A
Existing building or other structure is strong enough to support weight of wet concrete	<input type="checkbox"/>	<input type="checkbox"/>
Falsework has been designed	<input type="checkbox"/>	<input type="checkbox"/>
Formwork has been designed	<input type="checkbox"/>	<input type="checkbox"/>
Formed concrete finish required NZS2114 :1987: F F1 = concealed; F2 = for plastering; F3 = structural; F4 = industrial; F5 = architectural; F6 = high architectural		
Forms in place	<input type="checkbox"/>	<input type="checkbox"/>

	YES	N/A
Sealed/no gaps	<input type="checkbox"/>	<input type="checkbox"/>
Shoring/bracing as designed	<input type="checkbox"/>	<input type="checkbox"/>
Angle fillets in place	<input type="checkbox"/>	<input type="checkbox"/>
Striking/stripping enabled	<input type="checkbox"/>	<input type="checkbox"/>
Forms oiled	<input type="checkbox"/>	<input type="checkbox"/>
Other release agent required, eg precast	<input type="checkbox"/>	<input type="checkbox"/>
Clear of wire and debris	<input type="checkbox"/>	<input type="checkbox"/>

REINFORCING AND EPOXIED REINFORCING STARTERS AND ANCHOR BOLTS INTO EXISTING CONCRETE

ENSURE all existing embedded cables conduits, etc are identified prior to any drilling AND

ENSURE correct bars secure in correct position

The correct grade, type and size of reinforcing has been installed in the right positions so that concrete that is weak in tension acts as designed and the life span of the reinforced concrete is not compromised by insufficient cover to the concrete surface (free surface, formed surface, natural ground). In addition, the reinforcing must be: adequately and securely supported to carry the weight of the reinforcing, wet concrete and concrete placers (e.g. plastic vs concrete bar chairs, z reinforcing spacers), spaced correctly to allow the fresh concrete to pass between and around the bars, and be clean and uncontaminated.

	YES	N/A
Correct steel bar diameter and grade:		
Identify any buried conduits, etc, prior to drilling starters/anchor bolts into existing concrete	<input type="checkbox"/>	<input type="checkbox"/>
Correct embedment depth for reinforcing starters/anchor bolts	<input type="checkbox"/>	<input type="checkbox"/>
Load testing of starters/anchor bolts required	<input type="checkbox"/>	<input type="checkbox"/>
Top cover	<input type="checkbox"/>	<input type="checkbox"/>

	YES	N/A
Side cover	<input type="checkbox"/>	<input type="checkbox"/>
Bottom cover	<input type="checkbox"/>	<input type="checkbox"/>
Adequate support chairs	<input type="checkbox"/>	<input type="checkbox"/>
Z reinforcing spacers	<input type="checkbox"/>	<input type="checkbox"/>
Steel secure in place	<input type="checkbox"/>	<input type="checkbox"/>
Write down steel grade identifier written on bar:		

CAST IN OR EMBEDDED ITEMS, eg anchor bolts, conduits, earth straps etc are not omitted and are held securely in place including floating in the case of conduit.

CAST-IN ITEMS – ensure correct cast-in items secure in correct position

	YES	N/A
Dowels	<input type="checkbox"/>	<input type="checkbox"/>
Inserts	<input type="checkbox"/>	<input type="checkbox"/>

	YES	N/A
Bolt cages	<input type="checkbox"/>	<input type="checkbox"/>
Water bars	<input type="checkbox"/>	<input type="checkbox"/>
Angles	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>

OUTSIDE INSPECTIONS by the engineers, the local authority, the principal and the client are not forgotten.

HOLD POINT: SIGN OFF APPROVAL TO POUR SUBJECT TO WEATHER	SCL person responsible: _____ Engineer: _____
	Local authority: _____ Client: _____

CONCRETE

STRENGTH meets specification (ie mix design has been submitted and approved by the engineers) and production of correct number concrete test blocks has been arranged.

VOLUME has been correctly measured, including waste sensitivity calculations (thin slab has higher sensitivity than thick foundation).

DELIVERY TIMES AND TRAVEL DISTANCES have been determined from the ready mix plant to site, the plant has committed to meeting the delivery times and there is a contingency plan if the plant breaks down or there are traffic jams.

PLACEMENT has been determined (ie directly out of the truck/by wheelbarrow/by crane and skip/by concrete pump), there is a contingency plan if the crane or concrete pump breaks down, the need to tremmie concrete has been identified (eg greater than 2m high walls or columns to avoid the concrete segregating due to bouncing off the reinforcing as it drops, below water to ensure the concrete does not mix up with the water and compromise the water cement ratio- includes jettisoning/ throwing out initial corrupted concrete from pump line), sequence of concrete placement, access over wet concrete to work area.

COMPACTION METHOD has been determined (ie spud vibrator – mandatory requirement that there is a spare on site, length and size [effective range is dependent in size and is generally less than 300mm]/ form vibrators/self-compacting concrete).

SURFACE FINISH has been determined – type and sensitivity to weather, eg rain (water/cement ratio compromised), heat and wind (plastic shrinkage, hence need for antivap and misting to control temperature), frost (damage to concrete surface).

CURING SYSTEM ESTABLISHED – impermeable cover (eg formwork left in place, plastic) or water or membrane curing, curing materials on site.

WEATHER FORECAST has been checked, contingency plan in place, decision made to whether to pour or not.

STAFF ARE COMPETENT (ie supervisor, vibrator operator/s, placer/s, pump or crane operator).

HOUSEKEEPING – nominated washdown and waste concrete area (preference is for concrete truck to wash down back at the ready mix yard), mould (formwork) has been cleaned out including tie wire offcuts and mould and reinforcing have been wetted so that damp prior to casting.

YES N/A

	YES	N/A
PLACING		
Concrete mix design has been submitted to engineer for approval	<input type="checkbox"/>	<input type="checkbox"/>
Concrete MPa:		
Concrete slump:		
Aggregate size:		
Admixtures required	<input type="checkbox"/>	<input type="checkbox"/>
Specify:		
Cube tests required and organised	<input type="checkbox"/>	<input type="checkbox"/>
Cube test blocks taken	<input type="checkbox"/>	<input type="checkbox"/>
Slump test required	<input type="checkbox"/>	<input type="checkbox"/>
Volume measured	<input type="checkbox"/>	<input type="checkbox"/>
Volume ordered (including allowance for pump error)	<input type="checkbox"/>	<input type="checkbox"/>
Tremmie required to place (2m max drop allowed)	<input type="checkbox"/>	<input type="checkbox"/>
Number of trucks:		
Vibrator and backup on site (two different energy types, eg petrol and electricity)	<input type="checkbox"/>	<input type="checkbox"/>
Vibrator operators (names):		

Placing tools on site	<input type="checkbox"/>	<input type="checkbox"/>
Pooling water pumped out	<input type="checkbox"/>	<input type="checkbox"/>
Natural ground wetted	<input type="checkbox"/>	<input type="checkbox"/>
Access for placing and finishing in place	<input type="checkbox"/>	<input type="checkbox"/>
Check docket before driver exits truck	<input type="checkbox"/>	<input type="checkbox"/>
First truck batching time	<input type="checkbox"/>	<input type="checkbox"/>
Dump initial discharge from pump	<input type="checkbox"/>	<input type="checkbox"/>
Last truck discharged time	<input type="checkbox"/>	<input type="checkbox"/>
FINISHING		
Finish: U		
U1 = screeded; U2 = wooden float; U3 = trowelled; U4 = machine; U5 = shallow by broom; U6 = deep by broom/rake; U7 = grooved hard; U8 = grooved fresh; U9 = scabbled; U10 = special; U11 = ground		
U5 direction:		
Finishing tools on site	<input type="checkbox"/>	<input type="checkbox"/>
Curing or retarder type, eg water, spray film:		
Curing/retarder applied	<input type="checkbox"/>	<input type="checkbox"/>
Retarder required	<input type="checkbox"/>	<input type="checkbox"/>
Rain cover required	<input type="checkbox"/>	<input type="checkbox"/>
Frost protection required	<input type="checkbox"/>	<input type="checkbox"/>
Barriers or fences required	<input type="checkbox"/>	<input type="checkbox"/>
Washdown area on site	<input type="checkbox"/>	<input type="checkbox"/>
Weather forecast checked	<input type="checkbox"/>	<input type="checkbox"/>

DECISION TO POUR	SCL person responsible: _____	Date: _____

TEST RESULTS	N/A	MPa	Pass	Fail
7 day	<input type="checkbox"/>			
14 day	<input type="checkbox"/>			
28 day	<input type="checkbox"/>			

ANY CORRECTIVE ACTIONS REQUIRED: