275mm DINCEL CONSTRUCTION MANUAL FOR DESIGNERS AND BUILDERS

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DISCLAIMER

The information contained in this document is intended for the use of suitably qualified and experienced architects and engineers and other building professionals. This information is not intended to replace design calculations or analysis normally associated with the design and specification of buildings and their components. The information contained in this document is not project specific. Building professionals are required to assess construction site conditions and provide design/details and appropriate safe work method statements accordingly. Dincel Construction System Pty Ltd accepts no liability for any circumstances arising from the failure of a specifier or user of any part of Dincel Construction System to obtain appropriate project specific professional advice about its use and installation or from failure to adhere to the requirements of appropriate Standards, Codes of Practice, Worker Health & Safety Act and relevant Building Codes.

AUGUST 2019 MANUAL

Dincel's ISO 9705, BS 8414/AS 5113 and AS 1530.4 test results confirm Dincel's ongoing compliance supplementing the topics nominated in Dincel's CodeMark Certificate of Conformity.

Dincel's CodeMark Certificate of Conformity (No: CM40220) confirms our products conformity as a Structural Concrete Wall Element under the following clauses of the NCC.

- **Performance Requirement CP2** – Relevant performance requirement for non-combustible external wall construction
- **Specification C1.10** - Fire Hazard Properties
- **Performance Requirement CP8** - The use of fire collars, and the use of fire rated sealants at wall-to-wall and wall-to-slab junctions
- **Specification C1.1** - Fire Resistance Periods - Insulation and Integrity (Structural Adequacy is to be calculated by the project structural design engineer)
- **G5.2** - Bush Fire Zones
- **Performance Requirements CP1 and CP4.**

Uses other than as a Structural Concrete Wall Element, in relation to the above compliance clauses, are outside of the scope of CodeMark Certificate of Conformity (No: CM40220).

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BUILDING AND DESIGN WITH DINCEL® - WALL

(A) WHY 275mm DINCEL?

DINCEL® - WALL

275mm Dincel is a waterproof permanent polymer formwork for walls/columns.

(1) Able to pour 200mm concrete slump to achieve TRUE WATERPROOFING at the Dincel panel joints and ELIMINATE ENGINEERS' CONCERN for air voids, particularly in heavily reinforced sections having vertical and horizontal reinforcement bars at each face.

(2) Provide a significantly robust formwork where webs holding the formwork faces are not easily damaged because of:

- **Inappropriate site-cranage handling.**
- **Horizontal bars placement damaging the webs.**

(3) Capable of accommodating:

- **Conventional column, shear wall, deep beam reinforcement.**
- **200mm concrete slump up to 4.5m.**
- **Single pour height; if necessary, use of pocket vibrators.**
- **Significantly better waterproofing detail at the wall-footing junction.**
- **3m backfilling at the basement walls within 24 hours of concrete filling.**

(B) WHERE CAN IT BE USED ?

Building Walls	Basements, lift-stair shaft walls and columns. Excellent corrosion resistance for marine and agricultural building structures such as poultry, piggeries, fertiliser, sewerage plants, irrigation, water management channels and controlling devices.
Retaining Walls	Basement walls below permanent water table, earth retaining, mining, erosion control, river embankment protection, sea walls.
Storage Tanks	Water (detention, retention, stormwater pits), fish farming tanks, waste water, sewerage, sludge, petrol, manure, grain and contaminated soil.
Special Uses	Mine subsidence areas, prevent the migration of contaminated ground water, construction in acid sulphate soils, bund walls to protect islands against rising ocean levels, protect fresh water lagoons against sea water invasion, reclaimed lands in coastal areas for developments, energy free flood levies to protect township or generate flood free developable lands.

(C) THE USE OF THIS MANUAL AND DISCLAIMER

The users of this manual must read the Dincel disclaimer shown on page 1 and the following 275mm Dincel Product Acceptance Criteria of this manual. The design and detailing principles of each project may change depending on many engineering reasons, including ground conditions. It is the project's consultant's responsibility to design and adopt suitable detailing for each project. The installers must require specific project detailing for each and every project. **The detailing shown in this manual shall be treated as general guidance and not project specific.**

The project's conditions (including topography, excavation depth, proximity to water sources, ground water conditions) may necessitate the project's building professionals to decide on the Dincel wall/slab/footing junctions details to be adopted. The detail recommended for "below permanent water condition" for basement walls of this manual offer significantly minimised risk at the footing/Dincel wall junction. If the designer wishes to minimise the risk, the appropriate details are recommended to be adopted. **It must be accepted that the best waterproofing detailing may fail unless it is executed in a good workmanship manner. For this reason, Dincel Construction System Pty Ltd not being the installer, shall not take any responsibility for installation matters, including waterproofing.**

(D) Installer's 275mm Dincel Product Acceptance Criteria

Refer Page 1 – "Disclaimer", refer above Item No: (C) – "The Use of this Manual and Disclaimer".

The 275mm Dincel product is available in maximum 6.5m lengths. Dincel recommends that concrete shall be poured as per the following placement table:

275mm DINCEL WALL PLACEMENT TABLE FOR 180mm SLUMP OF CONCRETE			
WALL HEIGHT	**1ST POUR**	**MINIMUM WAITING TIME (HOURS)**	**2ND POUR**
Up to 4.5m	4.5m		
6.5m	4.5m	1 Hour	2.0m

Depending on the skills of the installer, Dincel's surface finish should represent Class 2 to Class 4 as per Table 3.4.2, AS3610 – Formwork Code if the concrete pour height is limited to maximum 4.5m.

It is the responsibility of the installer to fix bulged or damaged panels, if any were to occur. This possibility of bulging/damages with Dincel forms that might occur shall be treated no differently than the bulging/blowouts that commonly occur with conventional concrete walls with removable formwork.

As a manufacturer Dincel Construction System Pty Ltd shall not take any responsibility for installation matters, including waterproofing and bulging. Plumbing, straightness, squareness, achieving flush walls, class of finishing, etc. that may occur at the construction site after acceptance of the product (refer Dincel's Terms and Conditions of Sale).

Dincel Construction System highly recommends that Dincel users should require the acceptance of the above from their installers by signing below.

Project Name:…… Date: ……..

Name of Installer:…….. Signature:……..

NET CONCRETE QUANTITY – EXCLUDES WASTAGE FOR CONCRETE PUMP – HOSE/HOPPER, ETC.	
Per Cubic Metre of Concrete	3.7m^2 of Wall Area
Per Square Metre of Wall Area	0.27m^3 of Concrete

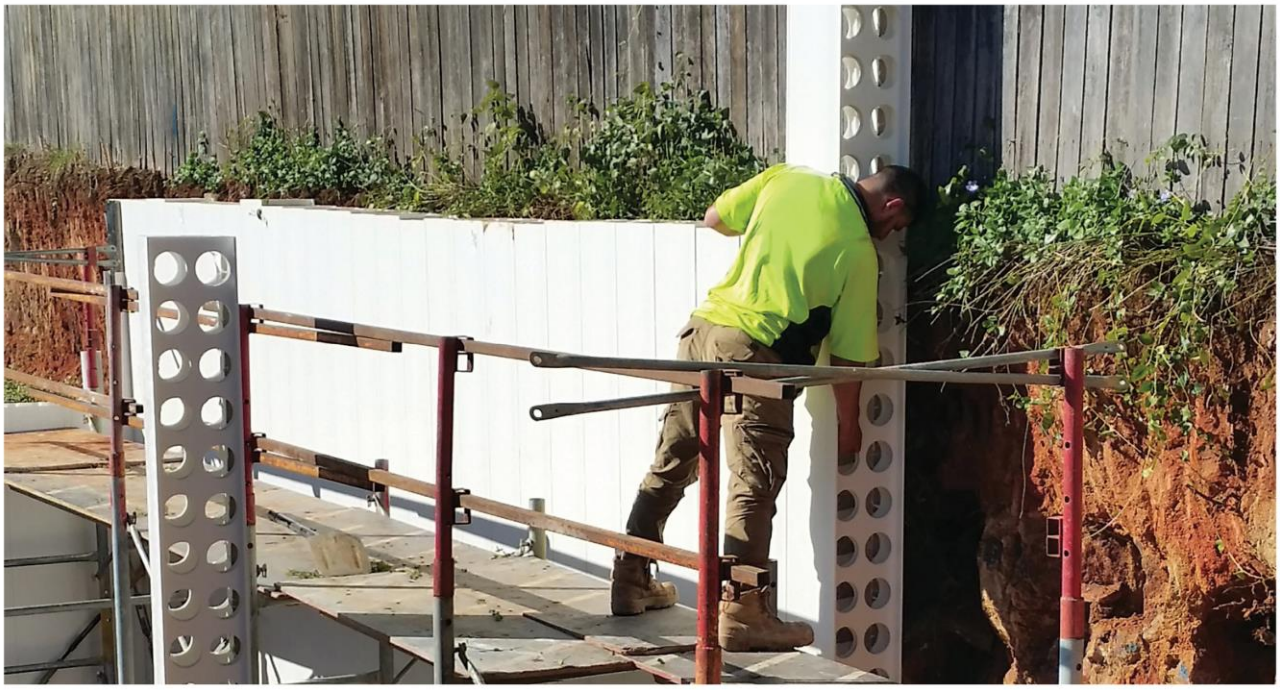
CONCRETE MIX SPECIFICATION FOR 275 DINCEL

Cement Type:	Type GP in accordance to AS3972. Fly ash in accordance with AS3582.1 may be used as cement replacement and/or improve workability.
Characteristic 28 Days Compressive Strength:	3 MPa to 100 MPa (as specified by design engineer). AS3600 allows up to 100 MPa. Dincel has already successfully utilised 80 Mpa concrete in the smaller profile 200 Dincel.
Design Target Slump:	**NO WATER TO BE ADDED AT THE POINT OF DISCHARGE** • Slump – Maximum 300mm for single pour height up to 3m. • Slump – Maximum 230mm for single pour height up to 3.6m. • Slump – Maximum 200mm for single pour height up to 4.5m. **Notes:** 1. Minimum slump – 180mm for non-WATERPROOF WALLS. 2. Minimum slump – 200mm for WATERPROOF WALLS. 3. Bracings (props and walers) must be designed for increasing slumps by an experienced designer.
Vibrator Use:	The use of a pocket vibrator and rubber mallet tapping during concrete placement is recommended in all cases.
Aggregate Size:	Maximum Aggregate size 20mm (maximum 10mm is recommended where waterproofing is required and the wall is designed to accommodate double vertical and horizontal steel bars).

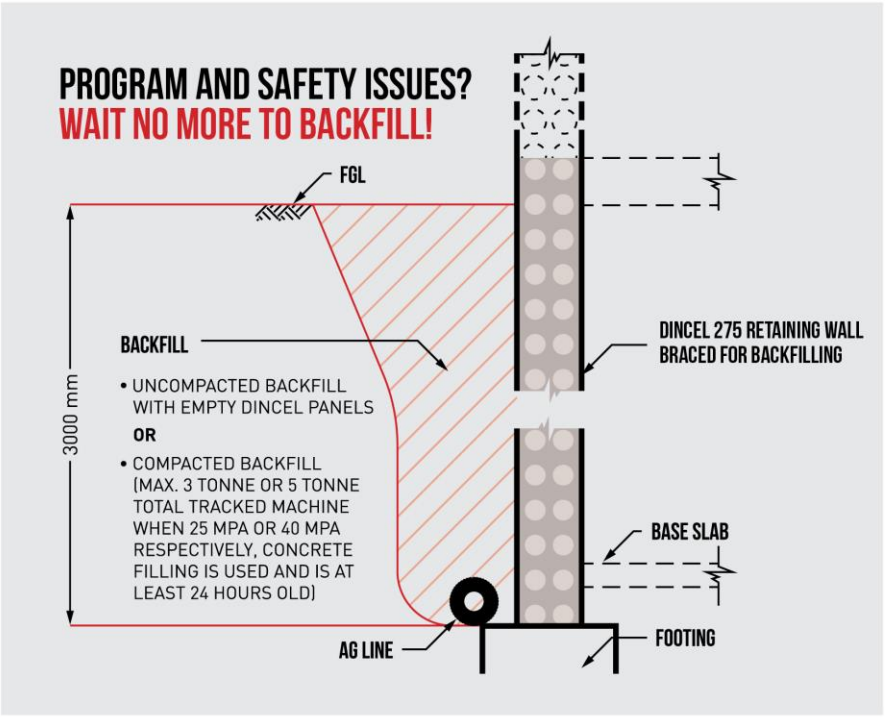
INDUSTRY FIRST: BACKFILL IMMEDIATELY NOW WITH DINCEL 275

DINCEL
STRUCTURAL WALLING

DINCEL 275MM PROFILE



INDUSTRY FIRST: BACKFILL IMMEDIATELY NOW WITH DINCEL 275



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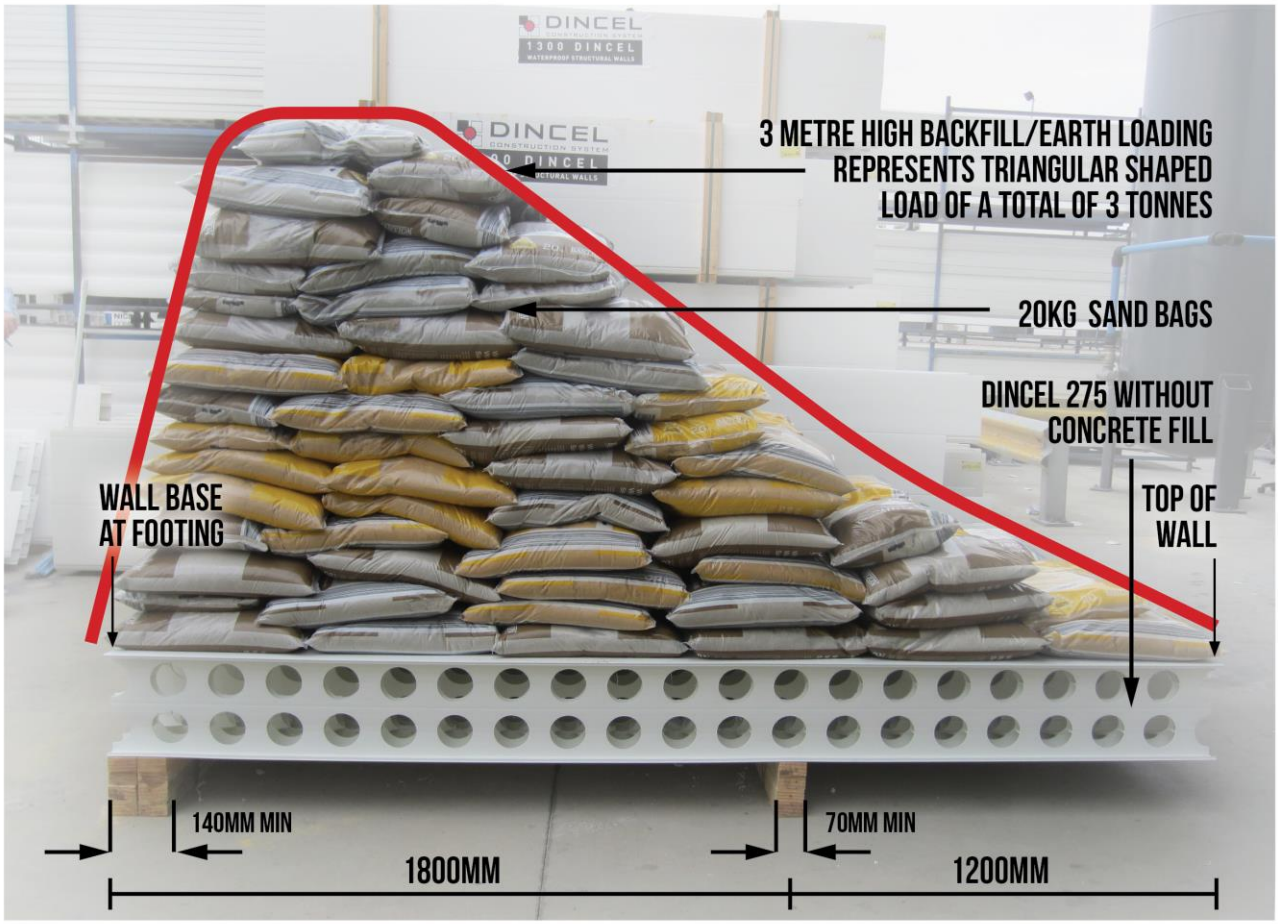
DINCEL 275MM PROFILE



DO YOU KNOW THAT 3 METRE HIGH DINCEL 275 HAS THE ABILITY TO BE BACKFILLED SOONER THAN YOU THINK?

Have you experienced wet weather problems whilst waiting for the backfilling to take place?

Do you normally have to wait **4 weeks**, **8 weeks** or **12 weeks** when backfilling at basement walls following bulk excavation?

DINCEL STRUCTURAL WALLING ARE PROUD TO DELIVER THIS INDUSTRY FIRST

The diagram above demonstrates the typical load on a basement wall.
If support arrangement as demonstrated above is adopted, a correctly braced empty Dincel 275 can be backfilled against immediately with uncompacted filling following installation.

Alternatively, concrete filled (min 25mpa) Dincel 275, only braced at the footing and at the position of formed deck over, can be backfilled with compacted filling after only 24 hours.

REFER TO FORMWORK/DESIGN ENGINEER FOR PROP, WHALER, AND BRACING SPECIFICATION.

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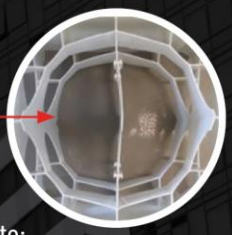
DINCEL
STRUCTURAL WALLING

DINCEL 275MM PROFILE

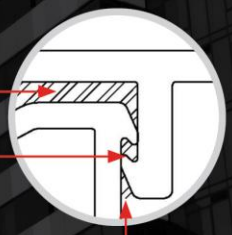
WHAT MAKES DINCEL 275MM WATERPROOF?

- Patented innovative ring form allows minimum 180mm concrete slump in a single pour up to 4.5 metres

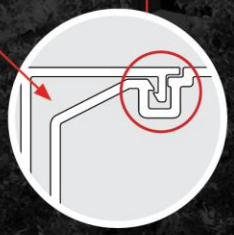


- 200mm concrete slump is essential to:
  - Improve concrete flow and compaction
  - Eliminate the possibility of air voids
  - Satisfy concerning engineers

- 200mm slump concrete slurry
- Patented Dincel barbs and cement slurry ensures that snap joint is waterproof



- No additional waterproofing membrane required (except at the wall/footing junction)
- 6mm gap does not allow aggregates to enter this space. This space will be full of cement slurry, particularly when 200mm slump concrete is poured at no less than 3000mm single pour height. It is therefore in the absence of aggregates, the cement slurry will fully engage and fill any possible gaps between the barbs of Dincel joints.



Waterproof joint

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STRUCTURAL WALLING

DINCEL 275MM PROFILE

CONCRETE POUR HEIGHT FROM 4.5M

4.5M HEIGHT, SINGLE POUR 200MM SLUMP POURED CONCRETE SAMPLE CUTAWAY

DOUBLE FACE; BOTH VERTICALLY AND HORIZONTALLY REINFORCED SOLID CONCRETE

"NO AIR VOIDS"

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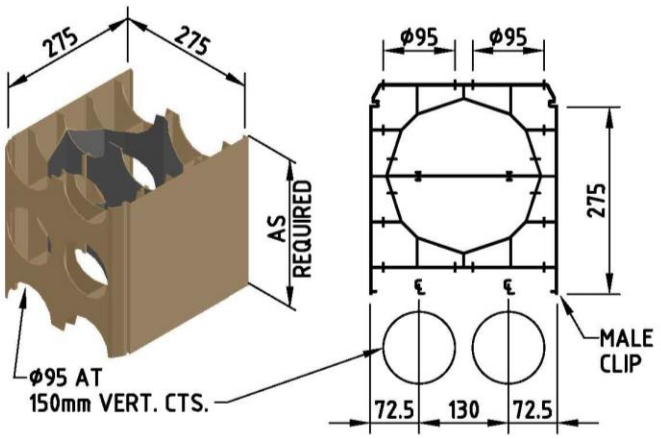
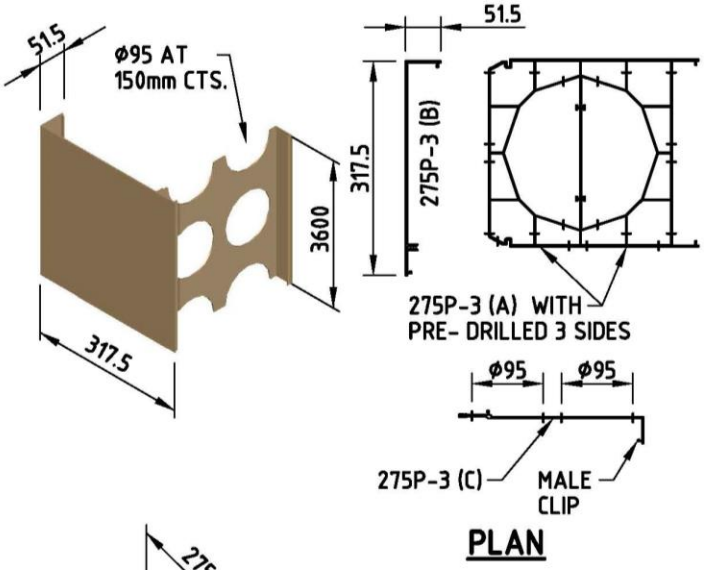
275mm SERIES PROFILES



275P-1 275mm MAIN PROFILE

Description: The 275P-1 profile is the main profile within the 275mm range. The main profiles can be installed in vertical or horizontal directions.

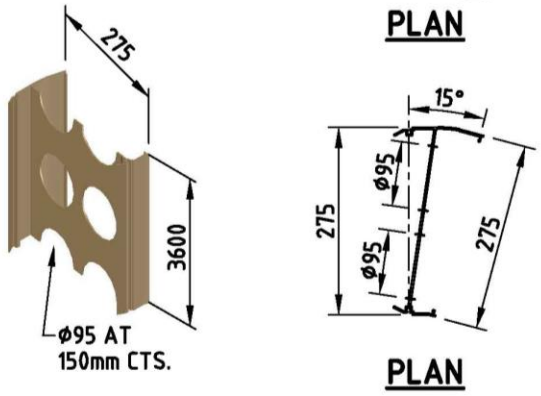
Method of Sale: The 275P-1 is a custom made profile sold in heights between 1800mm to 6525mm.



275P-3 275mm CORNER PROFILE

Description: The 275P-3 profile achieves 90° wall corner. This profile comes in 3 pieces which clip and screw together to create the corner module on site.

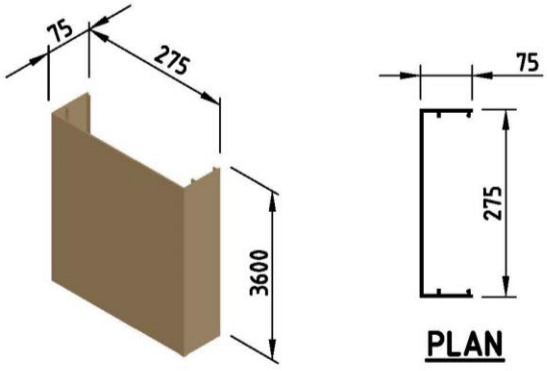
Method of Sale: All three (3) components available only in stock lengths of 3600mm.



275P-4 ANGLE PROFILE

Description: The 275P-4 profile allows corners to be built with 15° increments. the use of the product also allows circular formed or waved shaped walls.

Method of Sale: Available only in stock lengths of 3600mm.

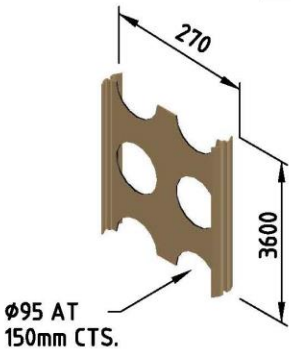


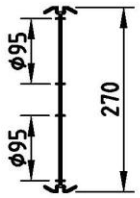
275P-EC END CAP

Description: The 275P-EC is used to finish off the end of a wall installed vertically.

Method of Sale: Available only in stock lengths of 3600mm.

275mm SERIES PROFILES



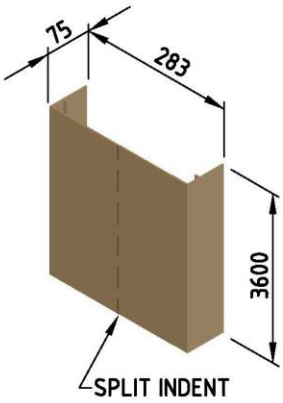


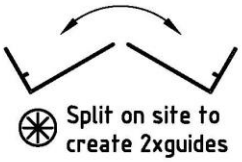
PLAN

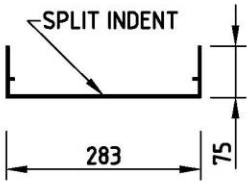
275P-J JOINER

Description: The 275P-J profile is used to join 275P-1 main profiles to each other through their male clips.

Method of Sale: Available only in stock lengths of 3600mm.



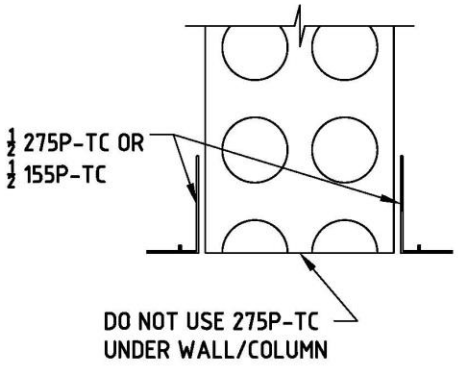




PLAN

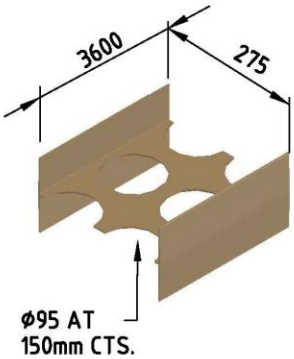
275P-TC Split on site to create 2xguides

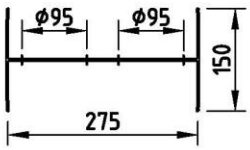
Description: The split 275P-TC is secured to slab or footing on either side of 275P-1 main panel to hold the bottom of the walls during concrete pour. 275P-TC is not recommended underneath the 275 Dincel walls.



SECTION

Method of Sale: Available only in stock lengths of 3600mm.





PLAN

275P-WS WALL SPLICER

Description: The 275P-WS is used as a wall splicer to extend the profiles installed in vertical or horizontal directions.

Method of Sale: Available only in stock lengths of 3600mm.

275P-3 WALL CORNER & JUNCTION LAYOUTS

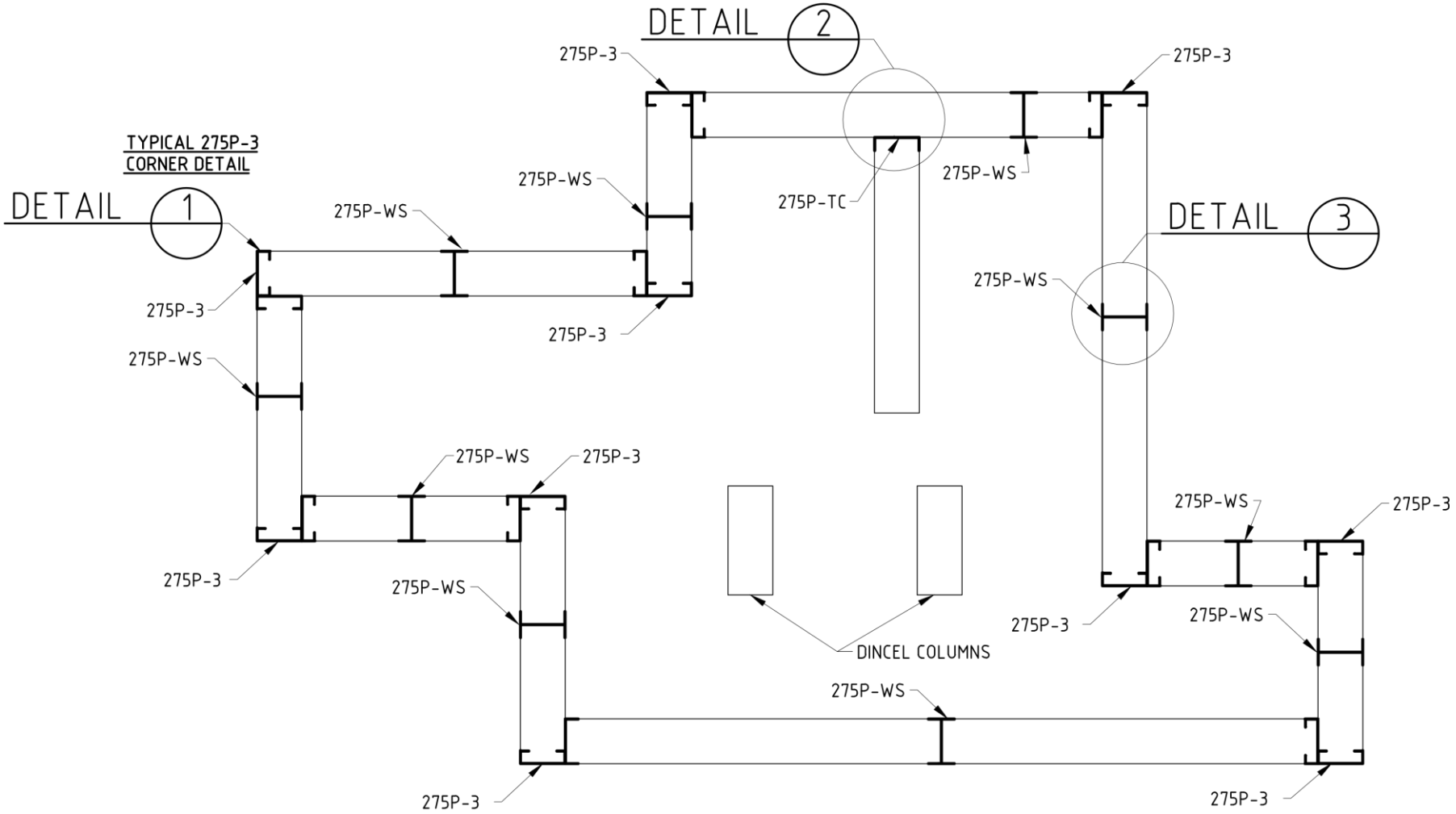
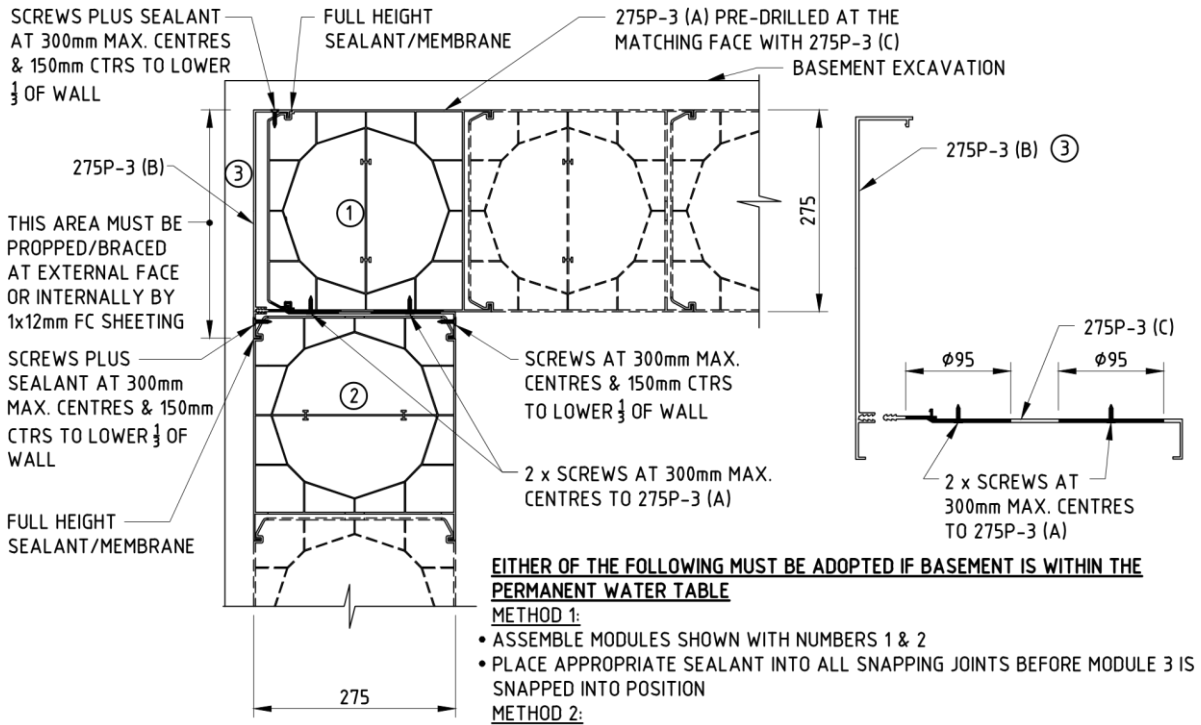


FIGURE - 1 275 P3 DINCEL WALL CORNER & JUNCTION LAYOUTS

• REFER FOLLOWING DETAIL-1 FOR ALL CORNER DETAILING

TYPICAL BASEMENT 275P-3 WALL CORNER DETAIL & TYPICAL BASEMENT WALL JUNCTION DETAIL



EITHER OF THE FOLLOWING MUST BE ADOPTED IF BASEMENT IS WITHIN THE PERMANENT WATER TABLE

METHOD 1:

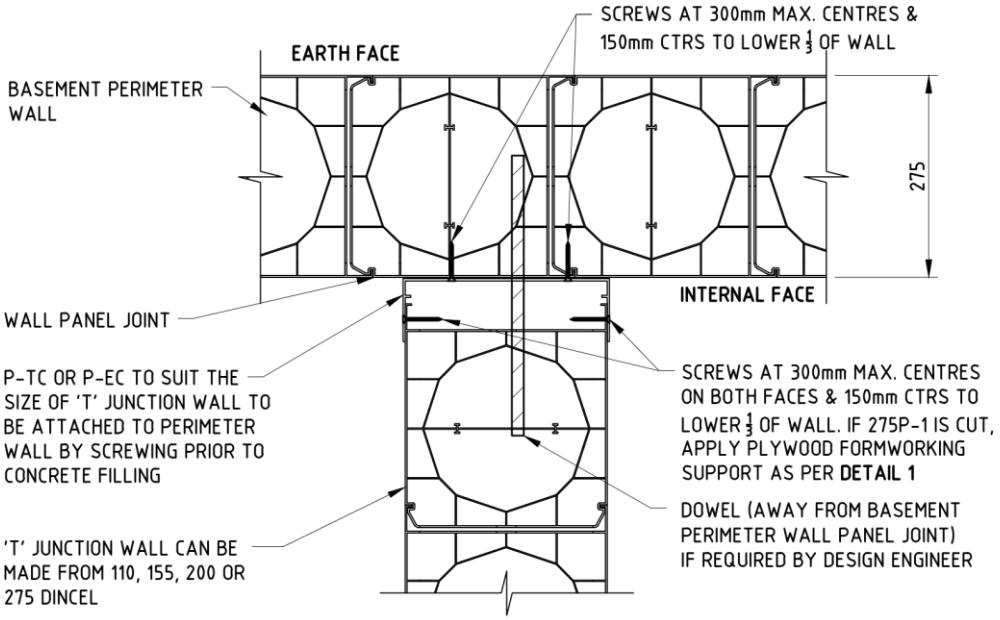
- ASSEMBLE MODULES SHOWN WITH NUMBERS 1 & 2
- PLACE APPROPRIATE SEALANT INTO ALL SNAPPING JOINTS BEFORE MODULE 3 IS SNAPPED INTO POSITION

METHOD 2:

- BEFORE INSTALLING CORNER PANELS, PRE-ASSEMBLE MODULES 1,2 & 3 & APPLY WATEPROOF MEMBRANE STRIP OVER SNAPPING JOINTS AS INDICATED ABOVE
- COMPLETE CORNER ASSEMBLY CAN THEN BE INSTALLED AS ONE UNIT

DETAIL 1

TYPICAL BASEMENT 275P-3 WALL CORNER DETAIL

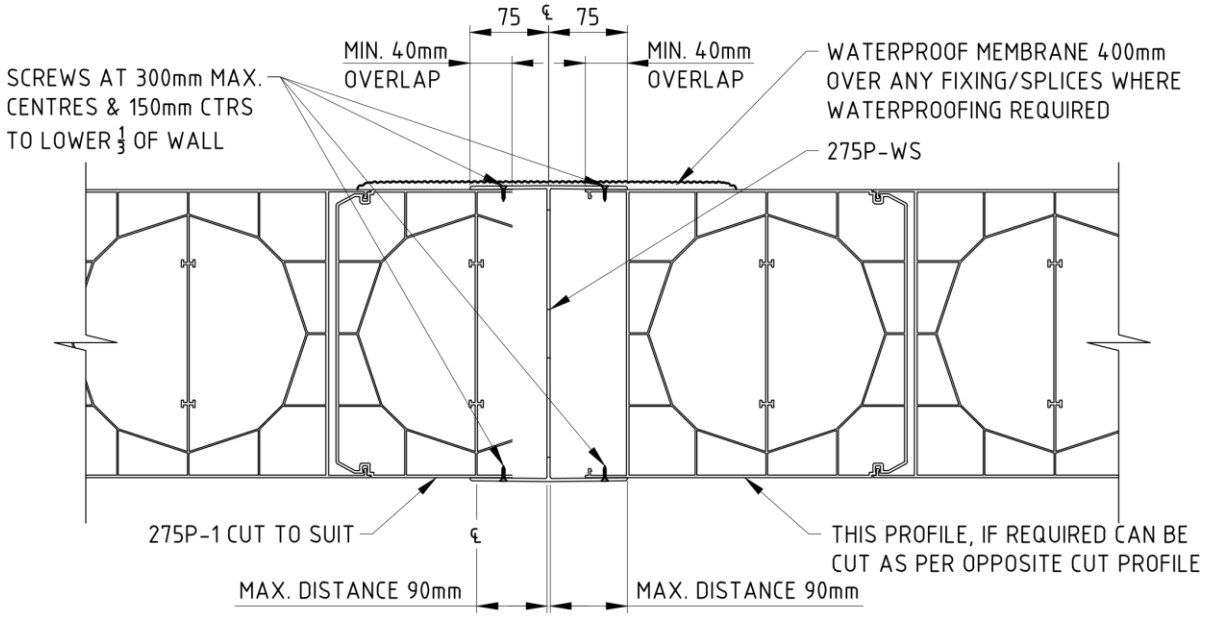


DETAIL 2

TYPICAL BASEMENT WALL JUNCTION DETAIL

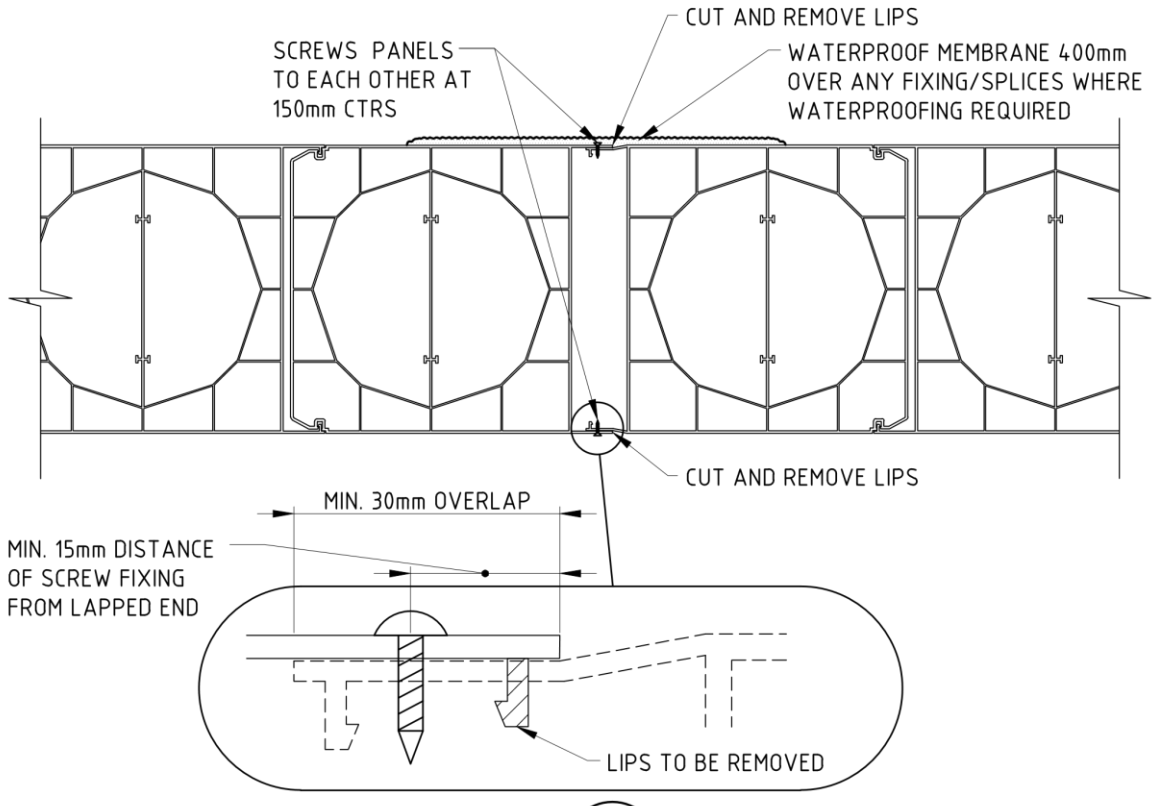
NOTE: THE CONCRETE **MUST BE POURED** INTO BASEMENT PERIMETER WALL PRIOR TO 'T' JUNCTION WALL, DOWELS CAN BE DRILLED INTO PERIMETER WALL

VERTICAL AND ALTERNATIVE SPLICE DETAIL



DETAIL 3
SCALE 1:20

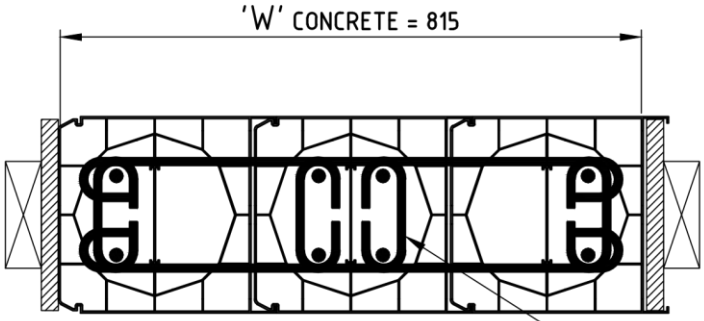
VERTICAL SPLICE DETAIL

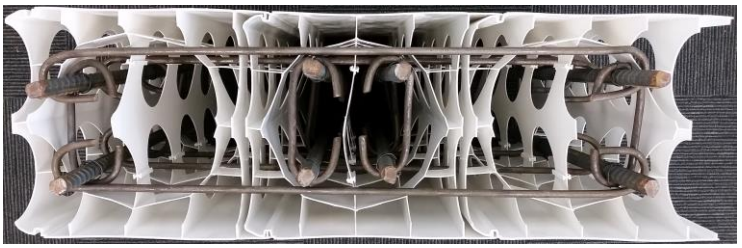


DETAIL 3
SCALE 1:20

ALTERNATIVE VERTICAL SPLICE DETAIL

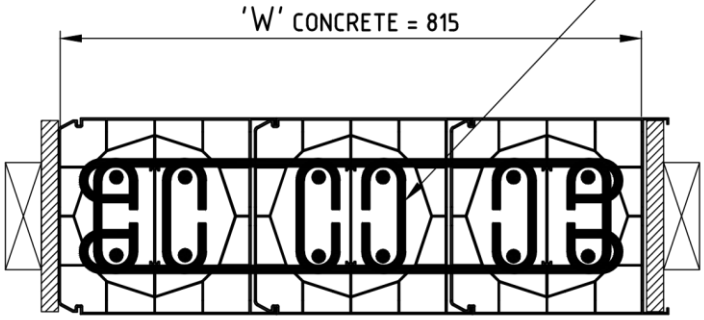
275 DINCEL COLUMNS

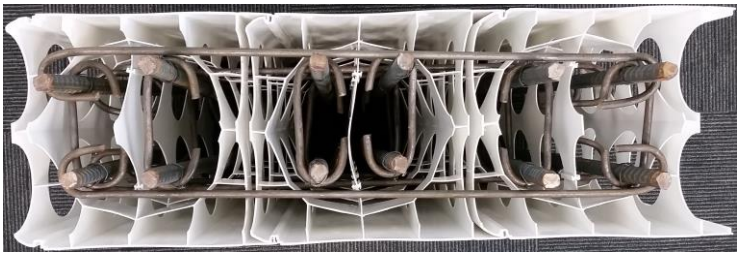




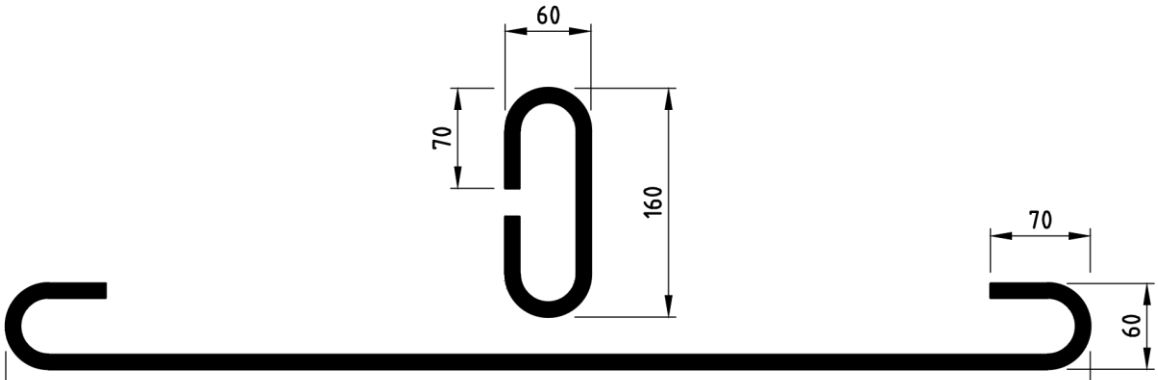
8 VERTICAL BAR SETOUT

TYPICAL TIES TACK WELDED OR WIRE TIED TO
VERTICAL BARS PLACED PRIOR TO HORIZONTAL BARS





12 VERTICAL BAR SETOUT



760 (FOR COLUMN CONSISTING OF 3x275 DINCEL MAIN PROFILES,
FOR 4x275 DINCEL MAIN PROFILES ADD 275mm TO THE LENGTH
FOR 2x275 DINCEL MAIN PROFILES SUBTRACT 275mm FROM THE LENGTH)

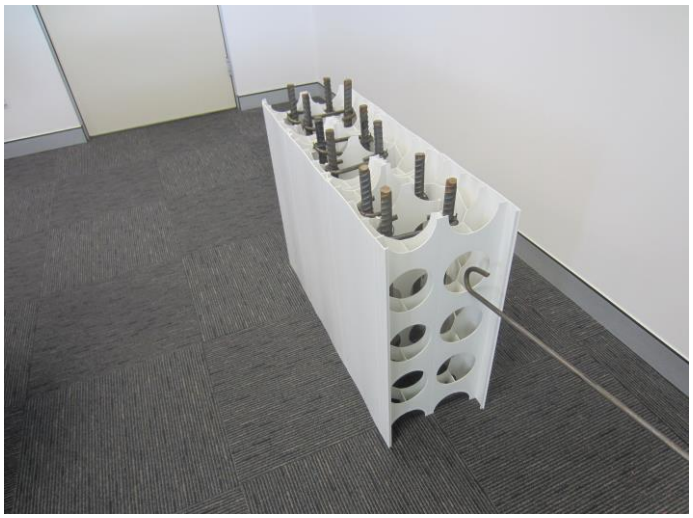
R10 TIE & HORIZONTAL BAR DIMENSIONS

NOTE: STARTER BARS MUST BE LOCATED TO BE CLEAR OF VERTICAL BARS, TIES AND DINCEL PROFILE WEBS

275 DINCEL COLUMNS

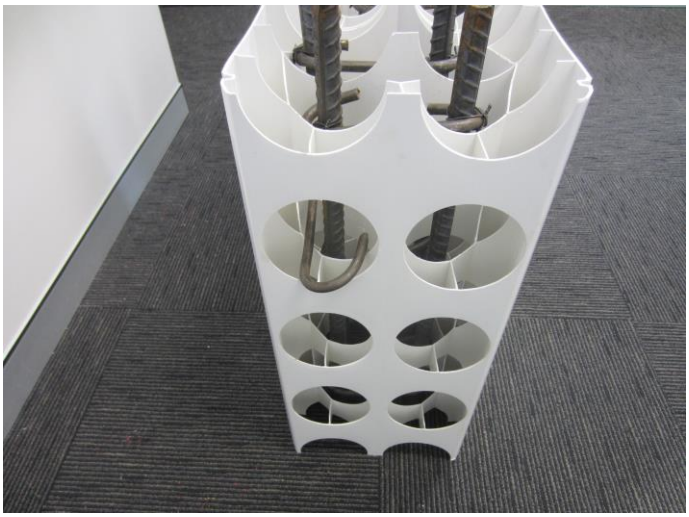
STEP 1

STEP 2

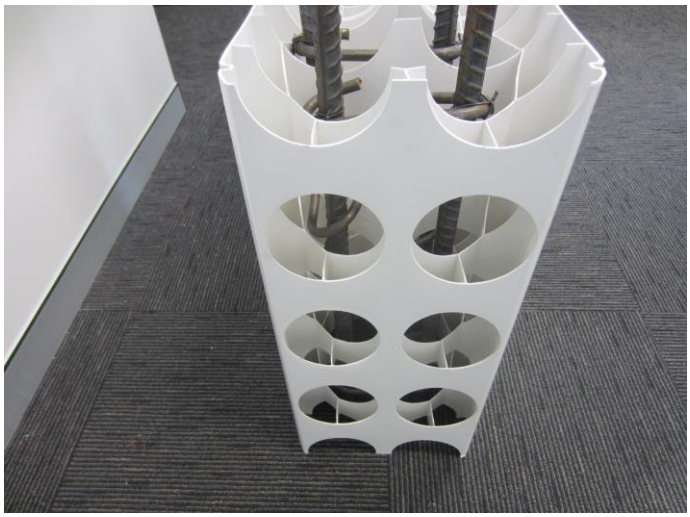


STEP 3

STEP 4

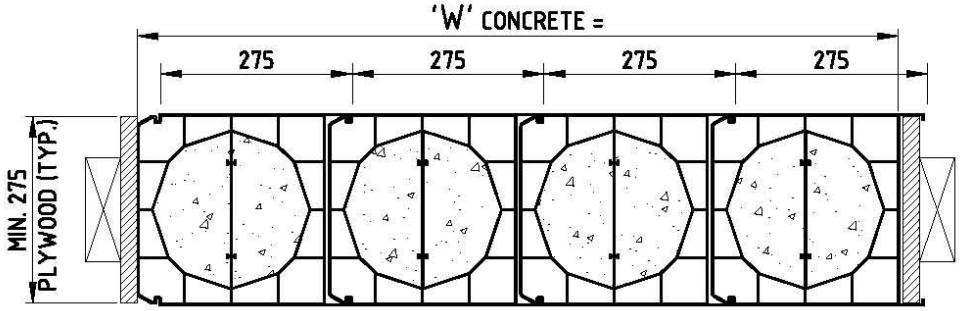


STEP 5



STEP 6

275 DINCEL COLUMNS

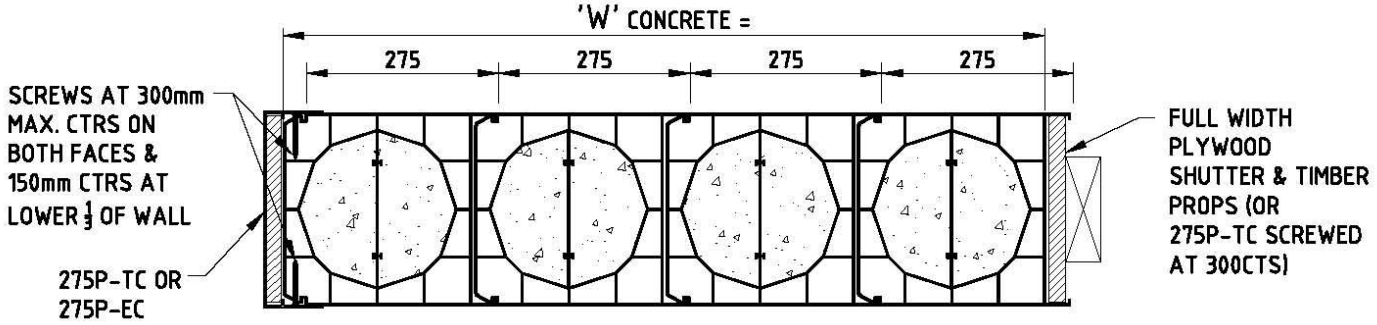


AS3600-2009 REQUIREMENTS

BLADE COLUMN DESIGN

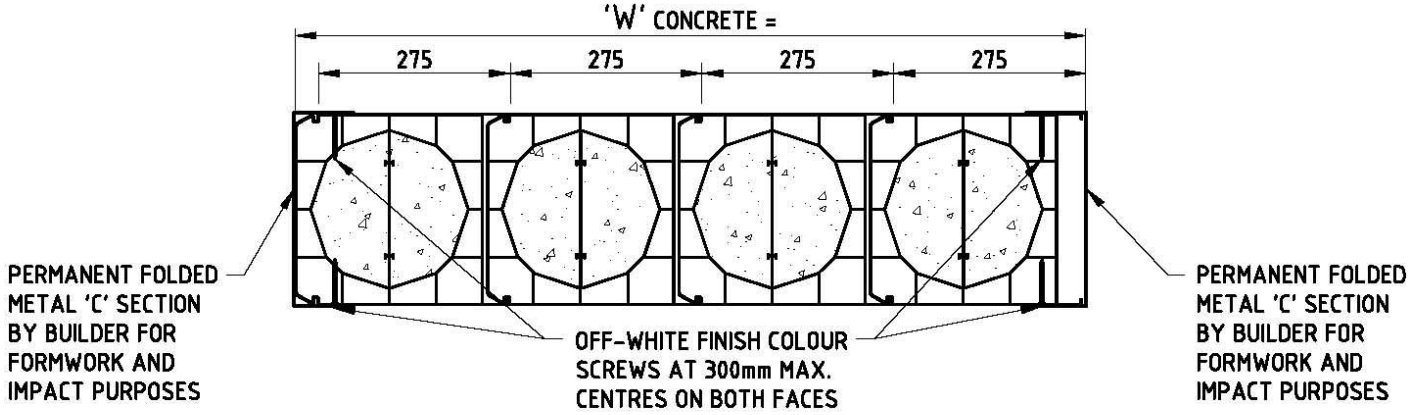
W CONCRETE ≥ 4x270
UNREINFORCED OR REINFORCED WALL DESIGN AS PER EUROCODE AS ALLOWED IN CLAUSE 5.3 OF AS3600-2009 (REFER DINCEL DESIGN TOOL)

COLUMN TO BE CLADDED (INTERNAL COLUMN)

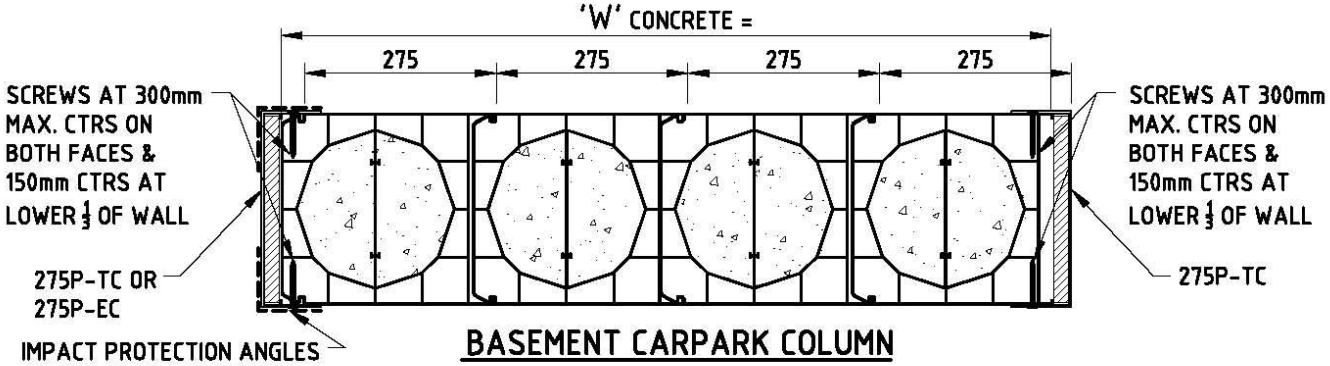


COLUMN TO BE CLADDED (INTERNAL COLUMN)

USE ONLY NON-COMBUSTIBLE PERMANENT SHUTTER SHOWN SHADED (E.G F.C SHEETS) OR REMOVE SHUTTER AFTER CONCRETE POURING



BASEMENT CARPARK COLUMNS

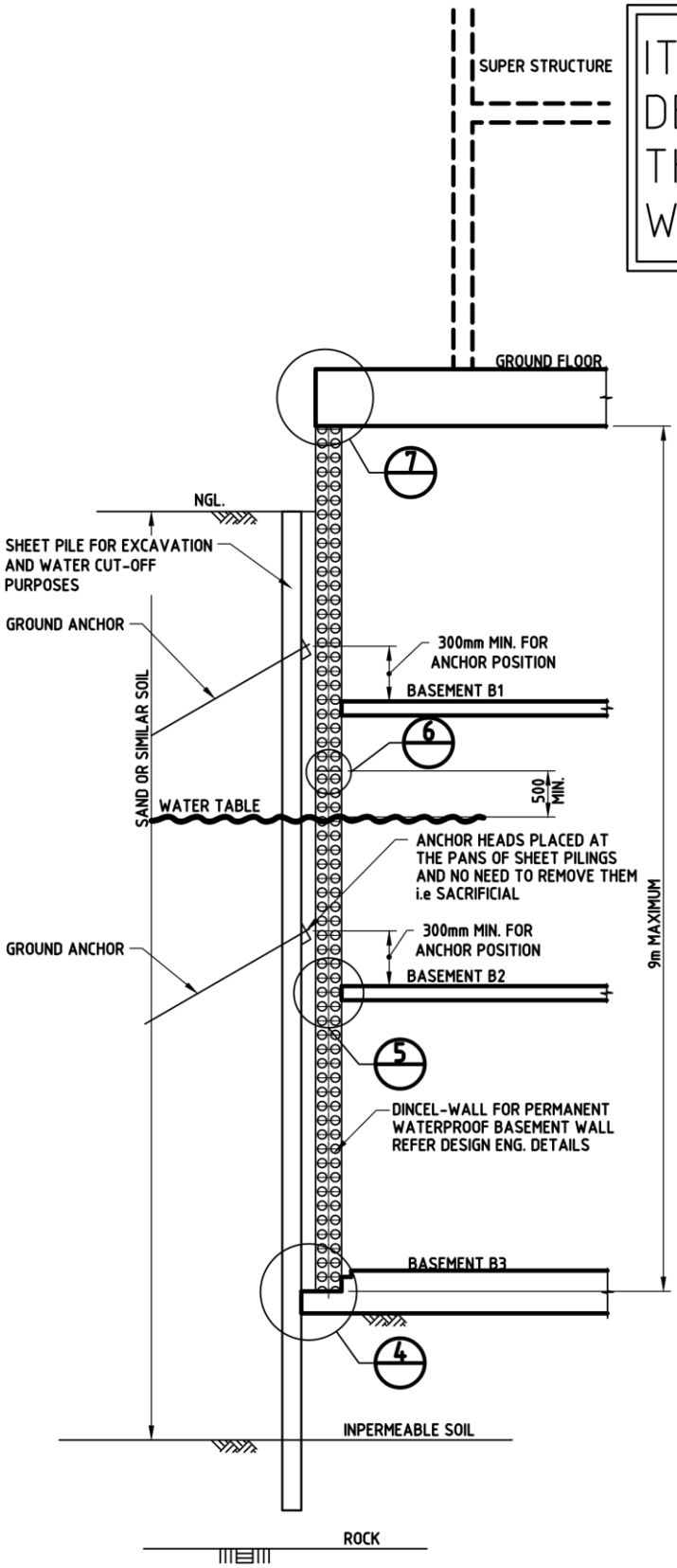


BASEMENT CARPARK COLUMN

USE ONLY NON-COMBUSTIBLE PERMANENT SHUTTERS SHOWN SHADED

SHORING-BASEMENT CONSTRUCTION IN SANDY SOILS WITH PERMANENT GROUND WATER

IT IS HIGHLY RECOMMENDED FOR DESIGN ENGINEERS TO DISCUSS THE BELOW METHODOLOGY WITH DINCEL ENGINEERS



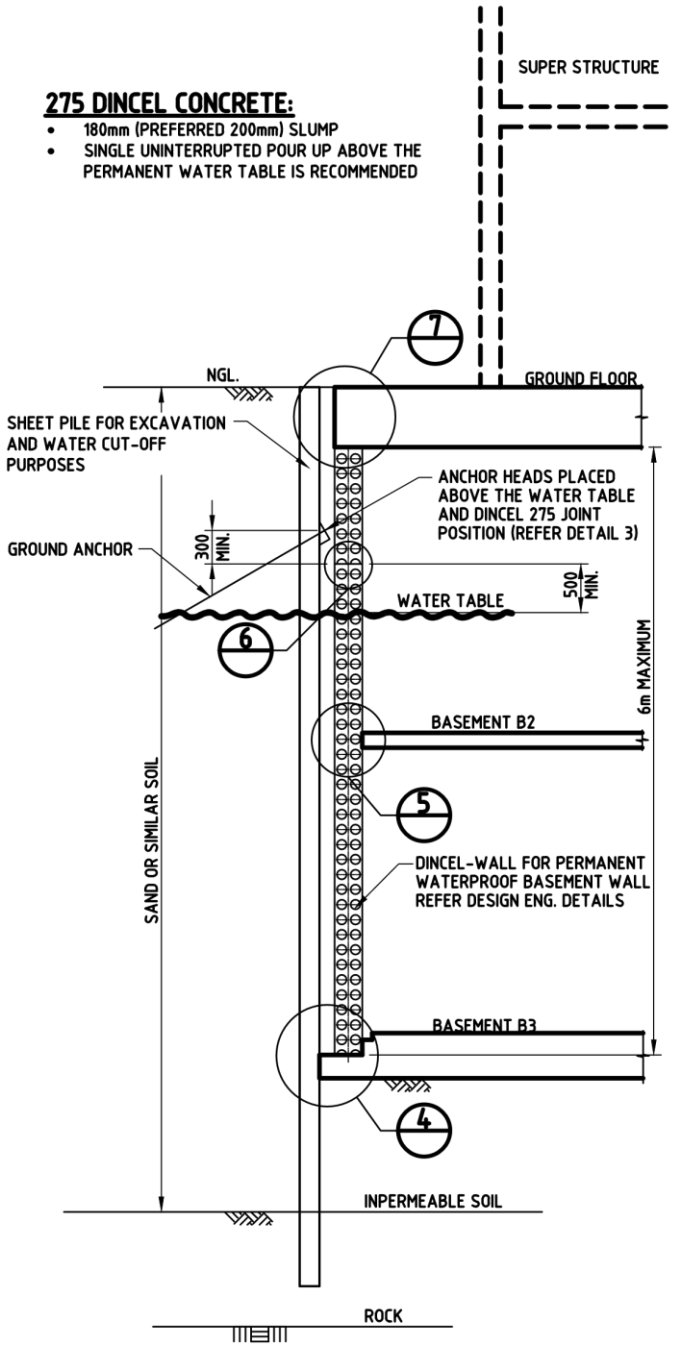
3 LEVELS OF BASEMENT

THE SHEET PILING NEED TO BE DESIGNED WITH ONLY ONE ROW OF ANCHOR POINTS IF THE SECOND ROW OF ANCHORS SHOWN ARE BELOW THE WATER TABLE, UNLESS SECOND ROW OF ANCHORS AND SHEET PILING ARE SACRIFICAL

(ALTERNATIVELY TO ABOVE, BUILD CONVENTIONAL CONCRETE WALL WHICH WILL REQUIRE 1200mm SPACE BEHIND THE CONCRETE WALL TO REMOVE THE ANCHORS, SHEET PILING AND THE WATERPROOF TANKING TO THE CONCRETE WALL).

275 DINCEL CONCRETE:

- 180mm (PREFERRED 200mm) SLUMP
- SINGLE UNINTERRUPTED POUR UP ABOVE THE PERMANENT WATER TABLE IS RECOMMENDED



2 LEVELS OF BASEMENT

THE SHEET PILING NEED TO BE DESIGNED WITH ONLY ONE ROW OF ANCHOR POINTS

(ALTERNATIVELY TO ABOVE, BUILD CONVENTIONAL CONCRETE WALL WHICH WILL REQUIRE 1200mm SPACE BEHIND THE CONCRETE WALL TO REMOVE THE ANCHORS, SHEET PILING AND THE WATERPROOF TANKING TO THE CONCRETE WALL).

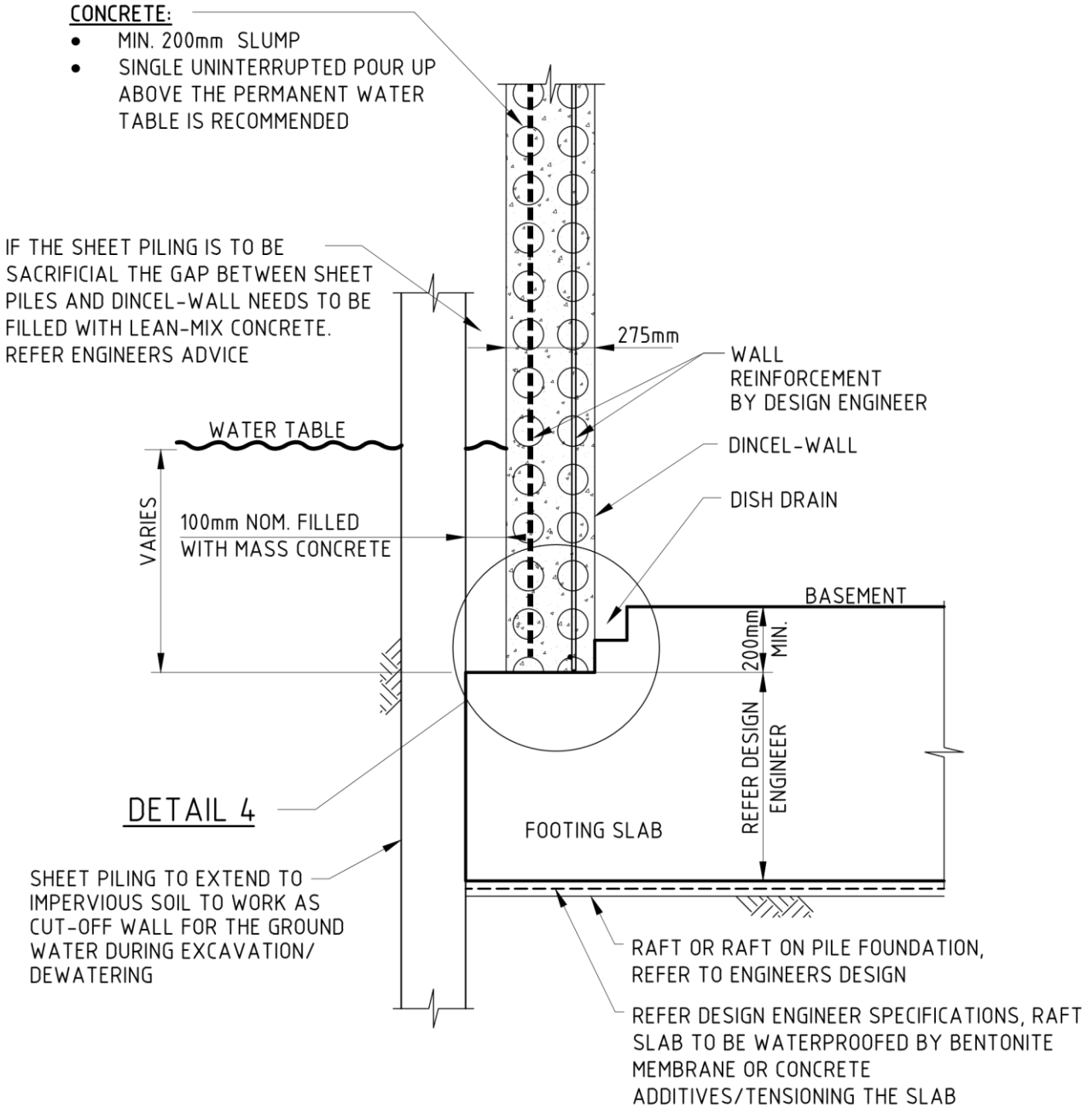
SHORING-BASEMENT CONSTRUCTION IN SANDY SOILS WITH PERMANENT GROUND WATER

BASEMENT CONSTRUCTION FOR PERMANENT WATER TABLE ABOVE THE FOOTING LEVEL

THE SELECTION OF FOOTING TYPE BY THE DESIGNER CARRY IMPORTANCE OF THE WATERPROOFING AT THE JUNCTION BETWEEN DINCEL WALL & FOOTING. DESIGNER MUST NOTE FOLLOWING WATER STOP NOTE:

IMPORTANT NOTE FOR WATER STOP USE

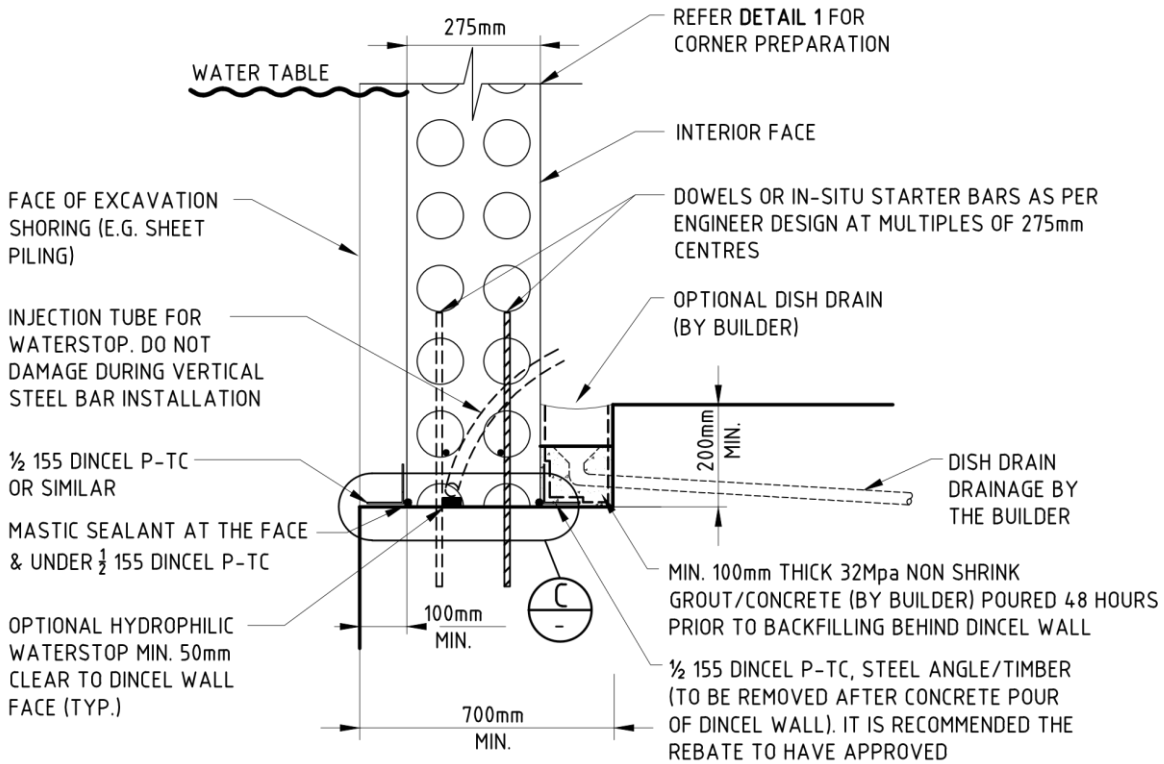
THE INSTALLER MAY CONSIDER USING HYDROPHILIC WATER STOP(S) IN LIEU OF INJECTION TUBES IN THE FOLLOWING DETAILS SHOWN IN THIS MANUAL.
THE USE OF HYDROPHILIC WATER STOPS ARE WORKMANSHIP DEPENDANT IE. SLUMP/AIR VOID FREE NATURE OF CONCRETE FILLING , IMPERFECTION OF PREPARED SURFACE (CONTRIBUTING FACTORS ARE: HAVING DOUBLE STARTER BARS, FOOTING TYPE, ISOLATED FOOTINGS OTHER THAN FLAT RAFT SLABS MAY HAVE SLOPING SURFACES, STEPS ETC) TO RECEIVE WATER STOPS, LAPPING/BUTTING OF WATER STOPS AT PARTICULARLY CORNERS, TIME OF PLACEMENT, TIME OF CONCRETE FILLING ETC. MAY MAKE HYDROPHILIC WATER STOPS INEFFECTIVE.

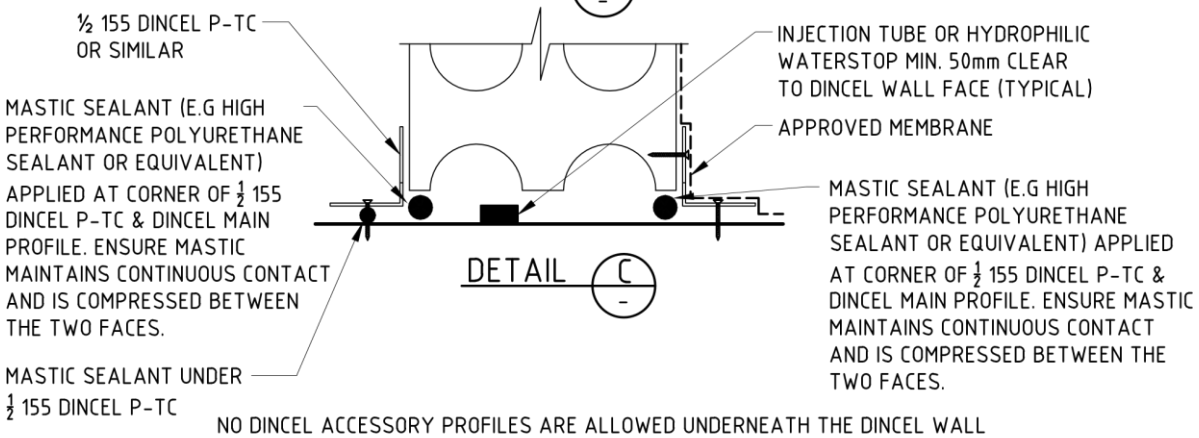


BASEMENT CONSTRUCTION FOR PERMANENT WATER TABLE ABOVE THE FOOTING LEVEL

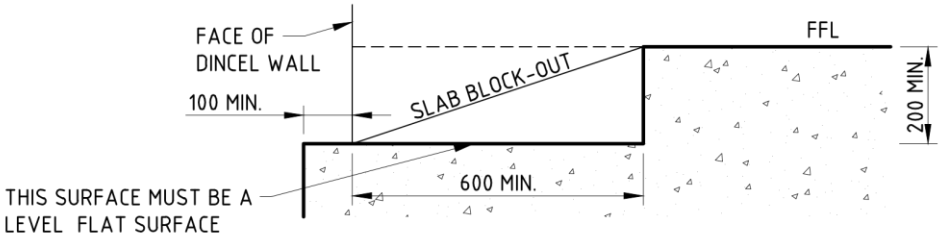
BASEMENT CONSTRUCTION FOR PERMANENT WATER TABLE ABOVE THE FOOTING LEVEL

BELOW DETAIL IS RELEVANT TO RAFT SLAB WITH EDGE REBATE. THE USE OF WATER STOPS (OTHER THAN INJECTION TUBE) MAY NOT BE EFFECTIVE WHERE ISOLATED FOOTINGS CONSIST OF SLOPING SURFACES & STEPS WHICH NORMALLY LEADS TO INEFFECTIVE SURFACE FINISH.



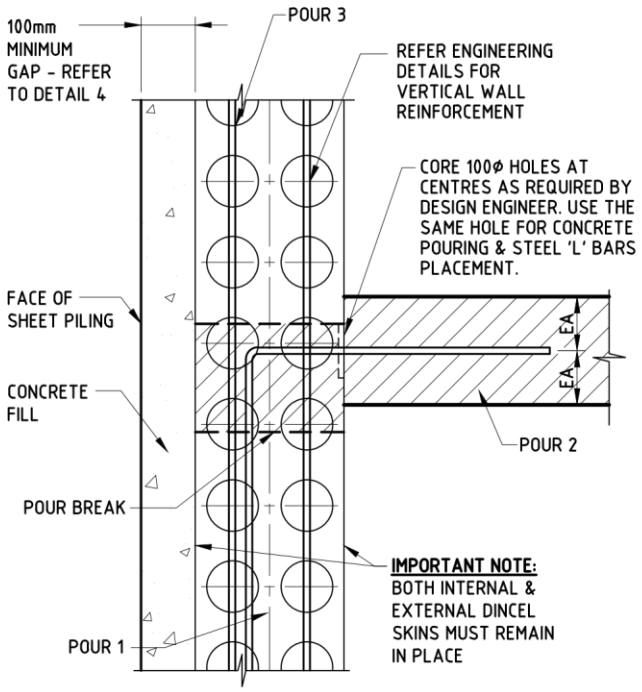


NO DINCEL ACCESSORY PROFILES ARE ALLOWED UNDERNEATH THE DINCEL WALL



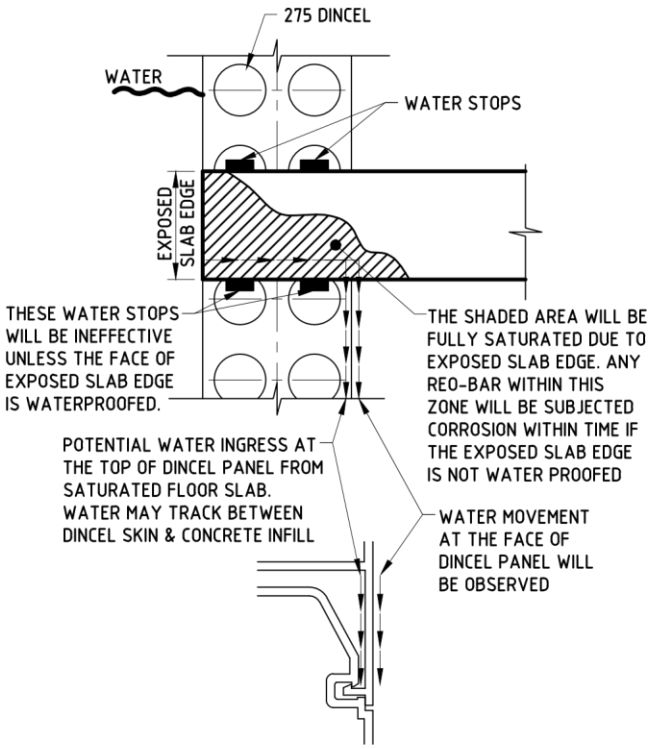
SLAB EDGE BLOCK-OUT DIMENSIONS

BASEMENT CONSTRUCTION FOR PERMANENT WATER TABLE ABOVE THE FOOTING LEVEL

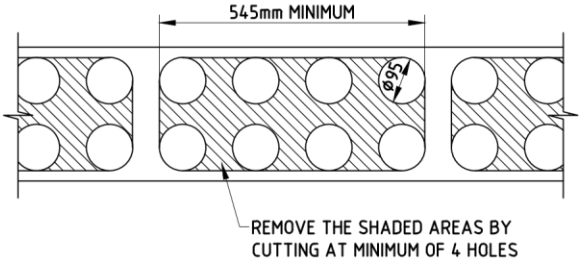


DETAIL 5

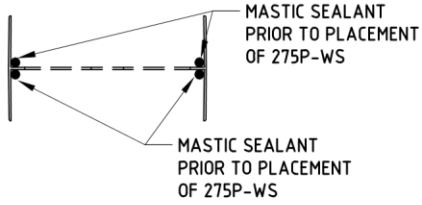
RECOMMENDED DETAIL AT OR BELOW PERMANENT OR FLUCTUATING WATER TABLE

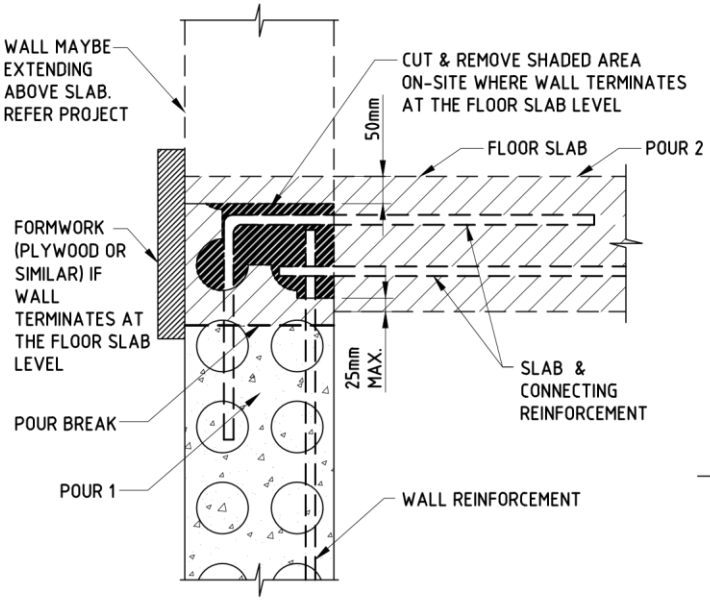


DINCEL DOES NOT RECOMMEND ABOVE DETAIL INSTEAD OF DETAIL 5

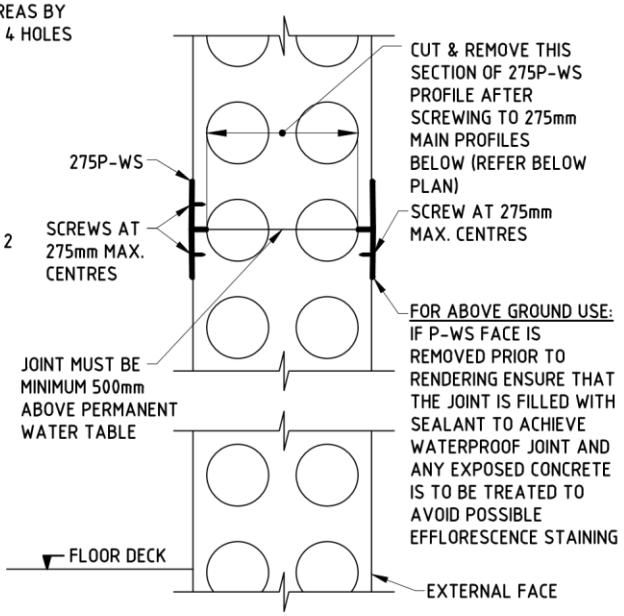


275P-WS PLAN





DETAIL 7



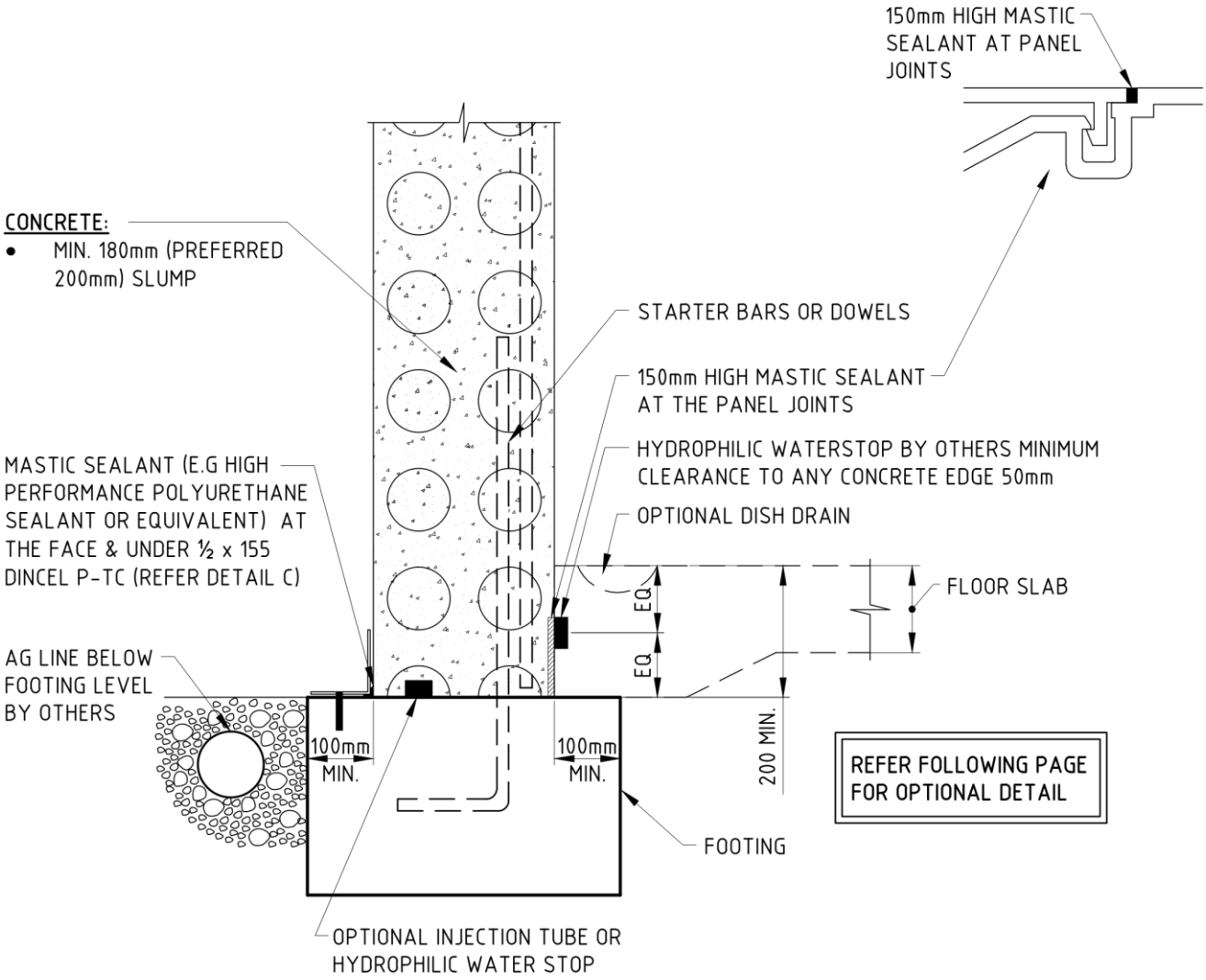
HORIZONTAL SPLICE DETAIL

ALTERNATIVELY USE PLYWOOD TO ACHIEVE THE SAME HORIZONTAL SPLICE DETAIL

THE USE OF THIS DETAIL IS NOT RECOMMENDED BELOW THE PERMANENT WATER TABLE

DETAIL 6

DINCEL BASEMENT WALL DETAILING WHERE WATER TABLE IS BELOW THE FOOTING LEVEL

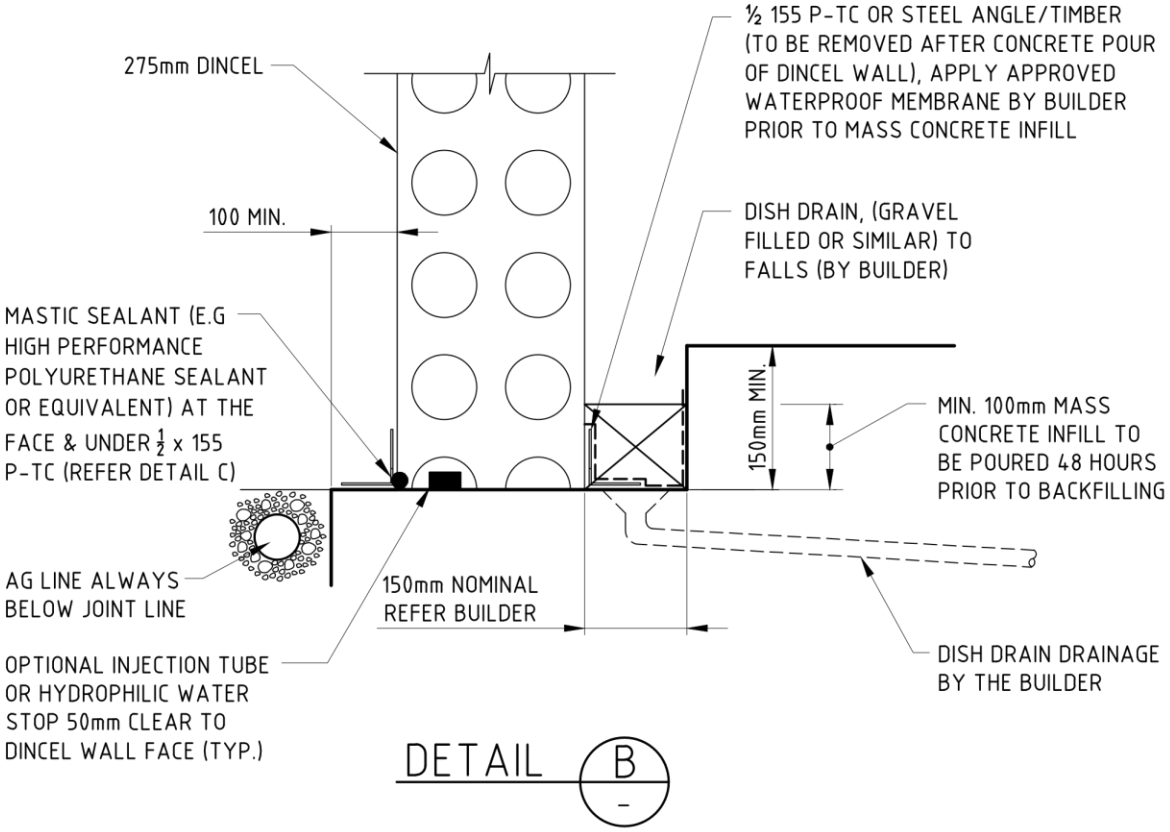


DINCEL BASEMENT WALL DETAILING WHERE WATER TABLE IS BELOW THE FOOTING LEVEL

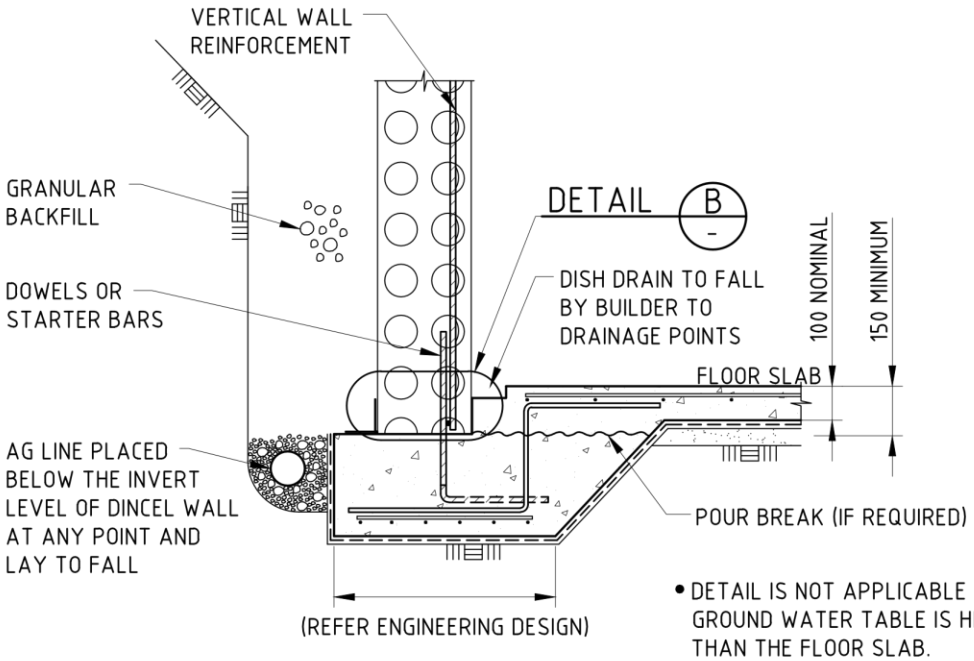
REFER ENGINEERING DETAILS FOR REINFORCEMENT, FOOTING AND SLAB DETAILS
DETAIL IS NOT APPLICABLE WHERE GROUND WATER TABLE IS HIGHER THAN THE FLOOR SLAB

DETAIL A

BASEMENT CONSTRUCTION WITH 275 DINCEL FOR PERMANENT WATER TABLE BELOW THE FOOTING LEVEL



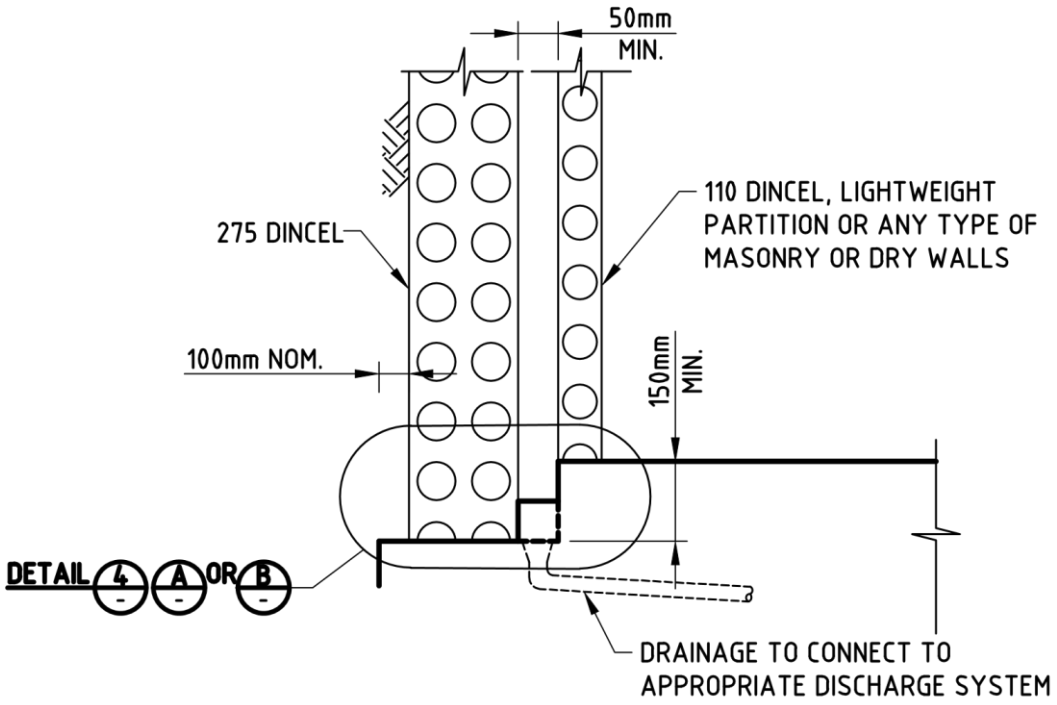
NO DINCEL ACCESSORY PROFILES ARE ALLOWED UNDERNEATH THE DINCEL WALL



- DETAIL IS NOT APPLICABLE WHERE GROUND WATER TABLE IS HIGHER THAN THE FLOOR SLAB.
- SLAB EDGE THICKENING CAN BE REPLACED WITH LEVELLING STRIP ON ROCK OR CONVENTIONAL FOOTING.

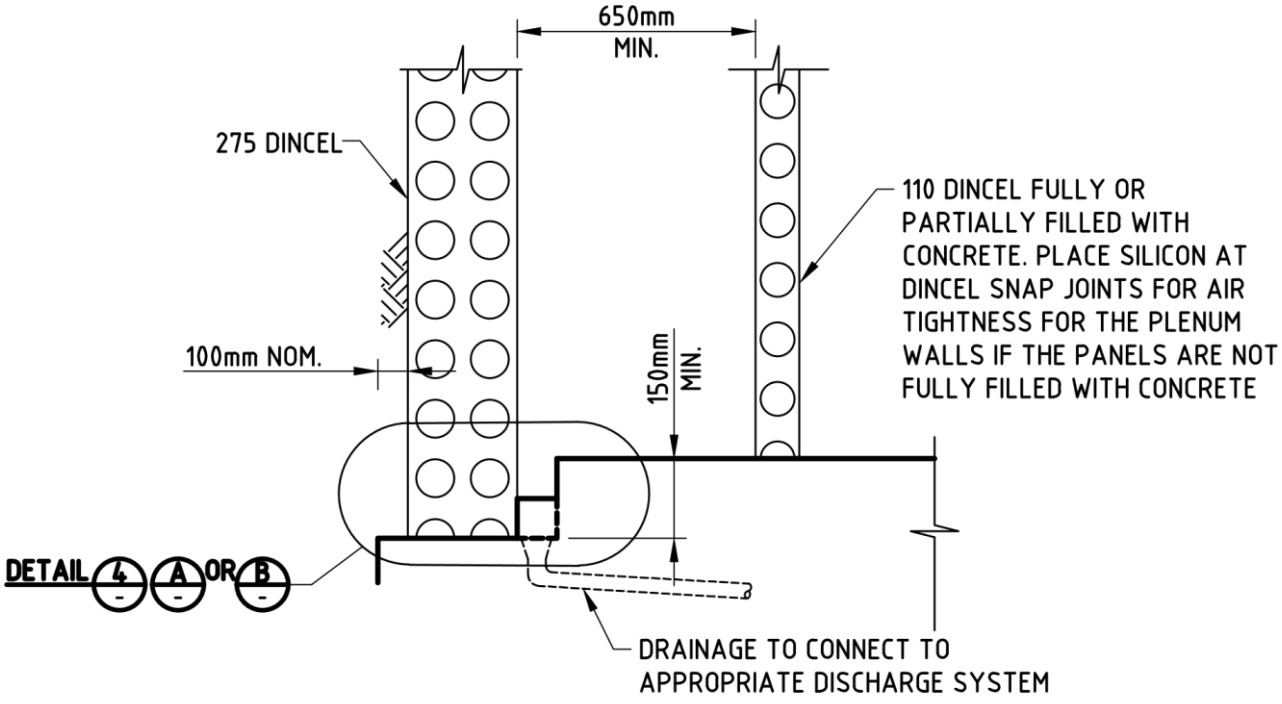
OPTIONAL BASEMENT CONSTRUCTION WITH 275 DINCEL FOR PERMANENT WATER TABLE BELOW THE FOOTING LEVEL

BELOW GROUND HABITABLE ROOM DETAIL AND BELOW GROUND MECHANICAL PLENUM DETAIL



BELOW GROUND HABITABLE ROOM DETAIL

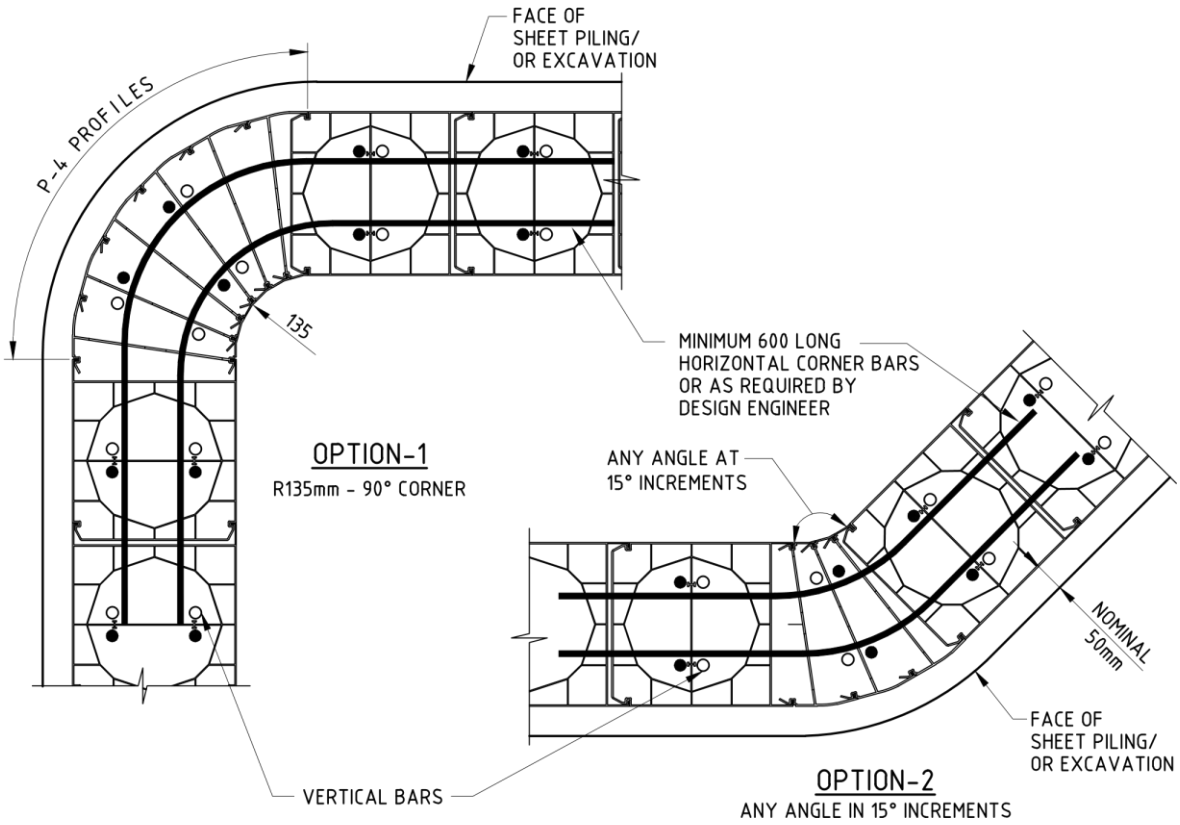
DETAIL A MAY CHANGE DEPENDING ON THE PERMANENT WATER TABLE

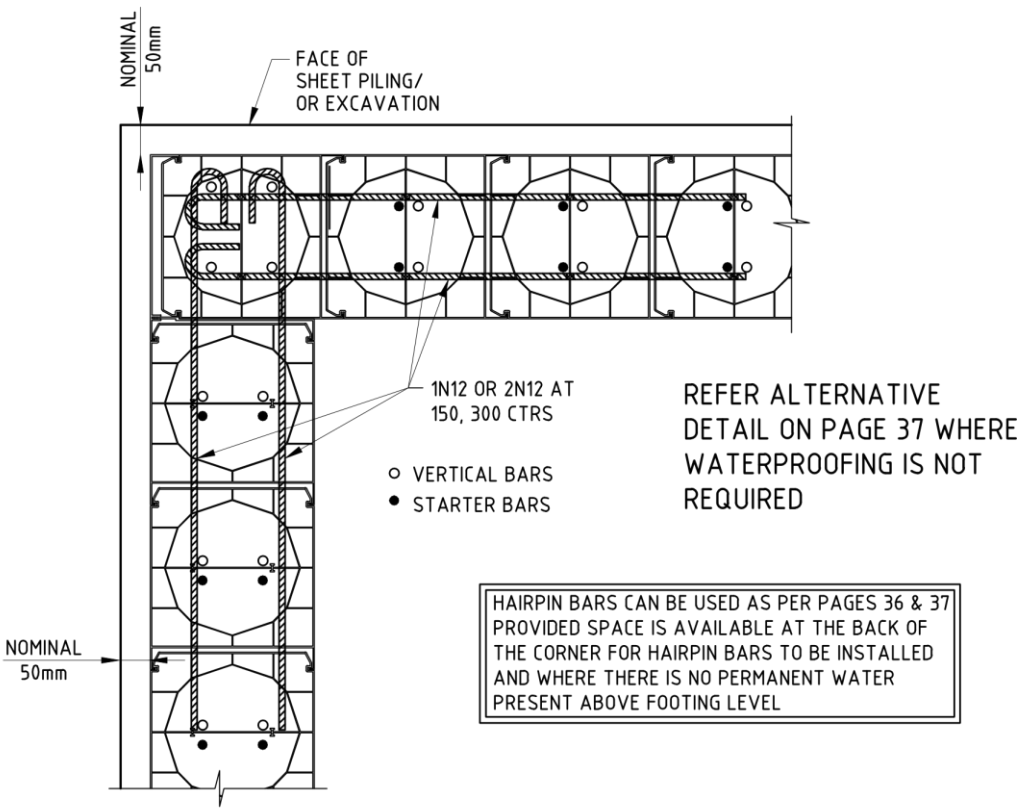


BELOW GROUND MECHANICAL PLENUM DETAIL

DETAIL A MAY CHANGE DEPENDING ON THE PERMANENT WATER TABLE

CORNER DETAILS AT 275mm THICK BASEMENT WALLS

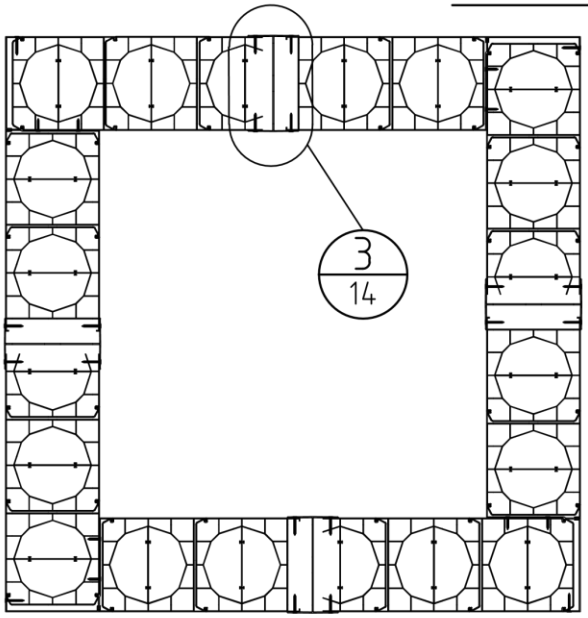




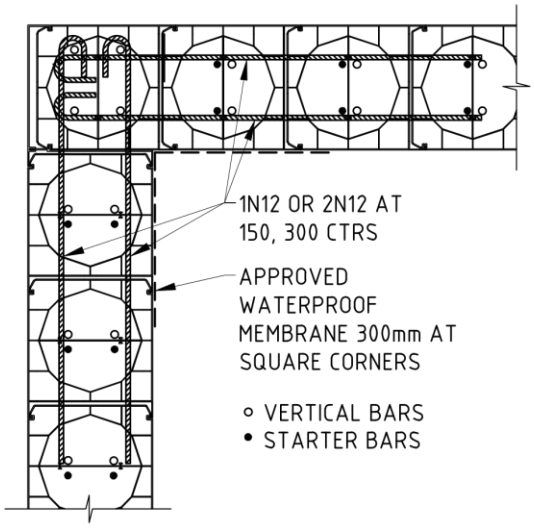
CORNER DETAILS AT 275mm THICK BASEMENT WALLS
WHERE ENGINEER SPECIFIED N12 HOOK BARS ONLY

275 DINCEL TANKS

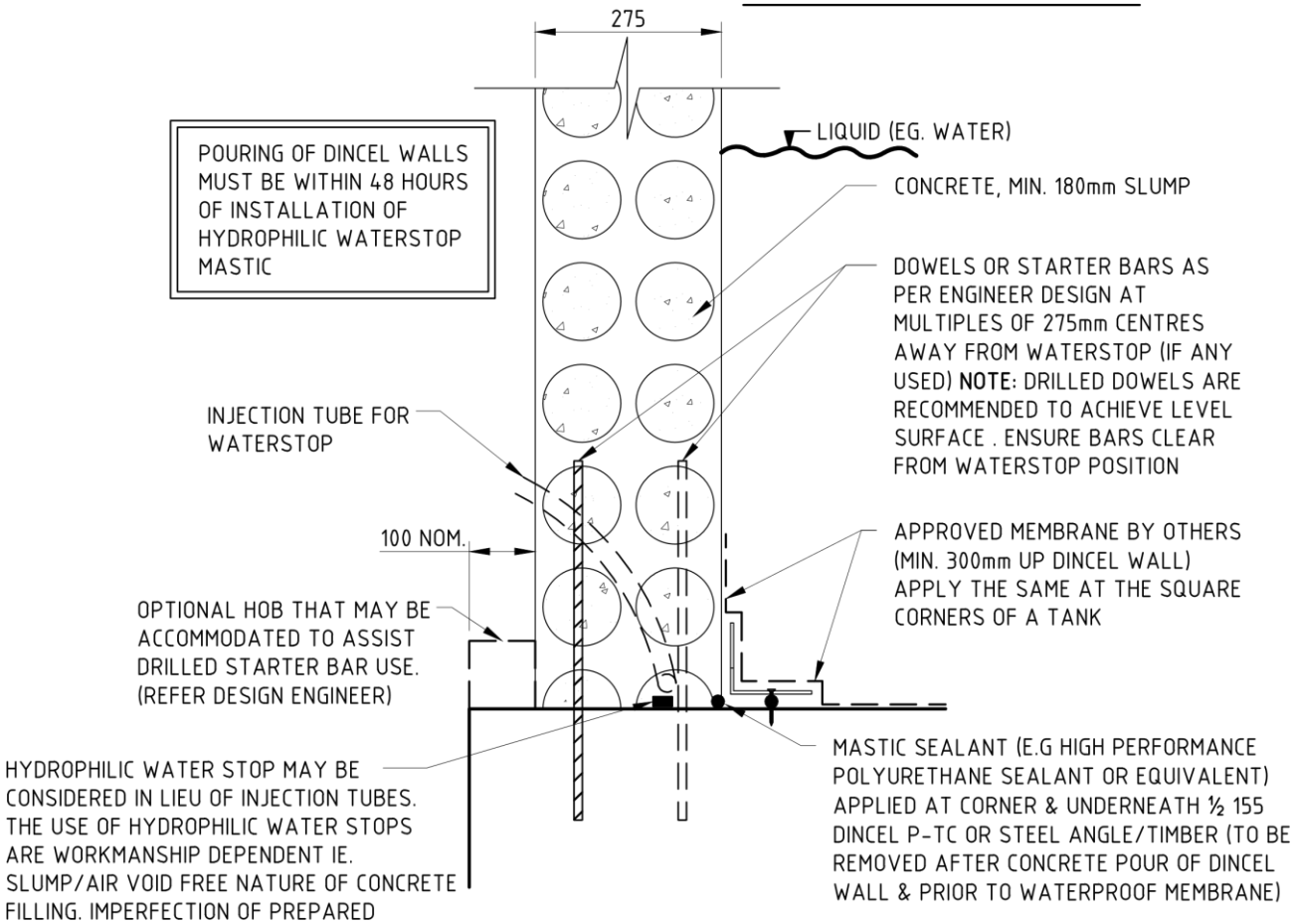
275 DINCEL TANKS



SQUARE TANK

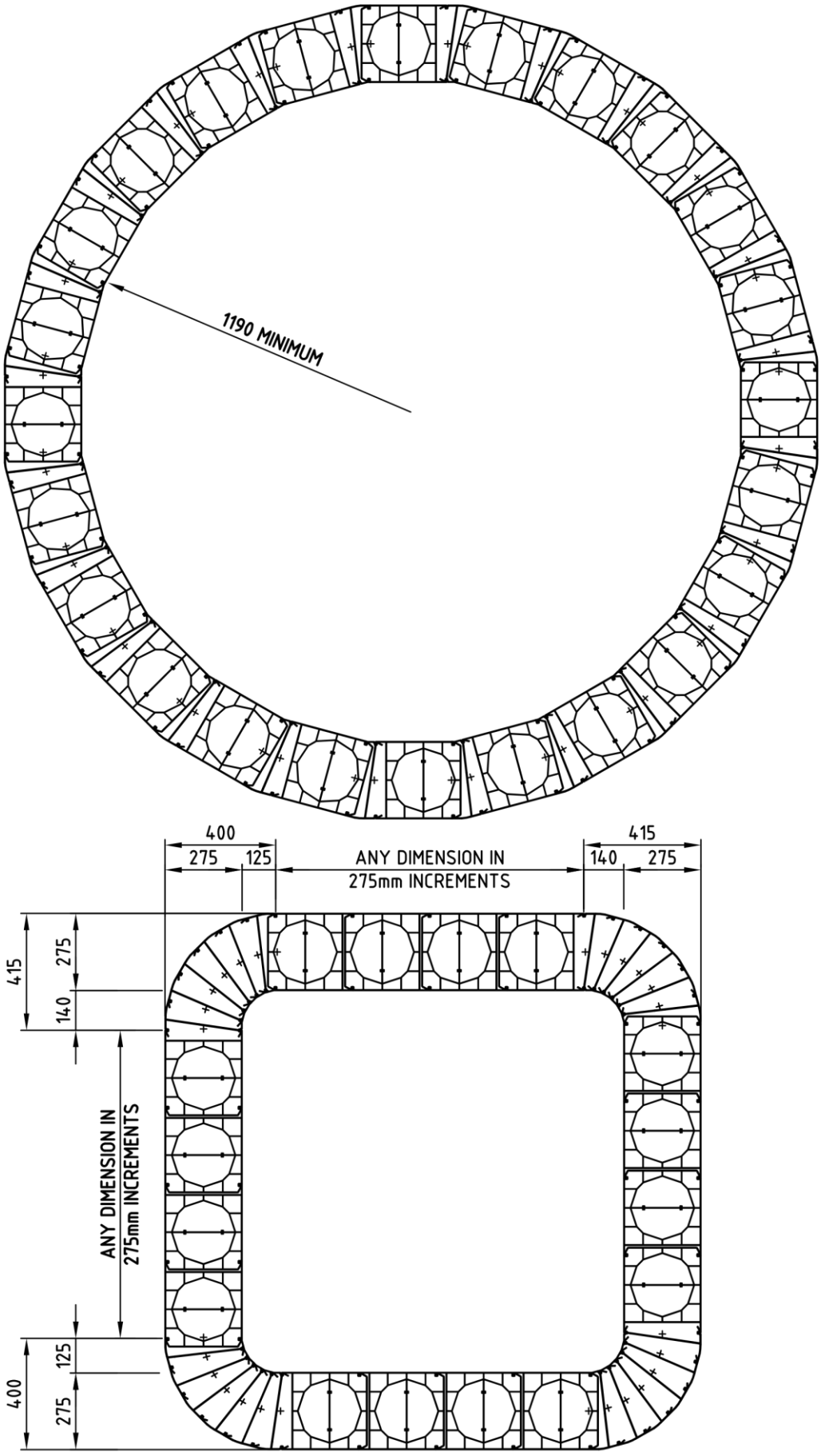


CORNER DETAILS AT 275mm THICK TANK WALLS



TYPICAL TANK WALL DETAIL

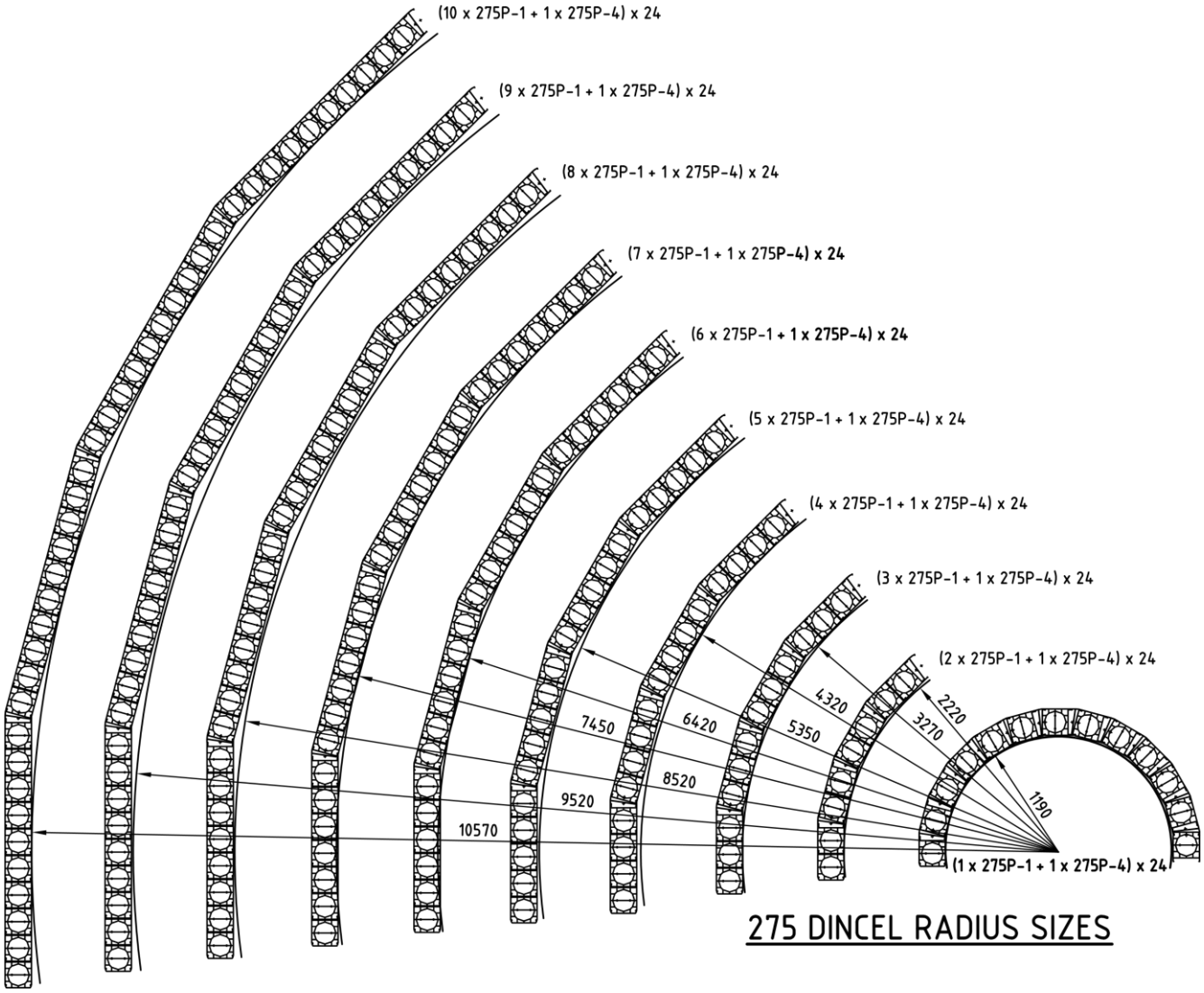
REFER TO ENGINEERS DESIGN FOR WALL REINFORCEMENT
NO DINCEL ACCESSORY PROFILES ARE ALLOWED UNDERNEATH THE DINCEL WALL



RECTANGULAR OR CIRCULAR TANKS

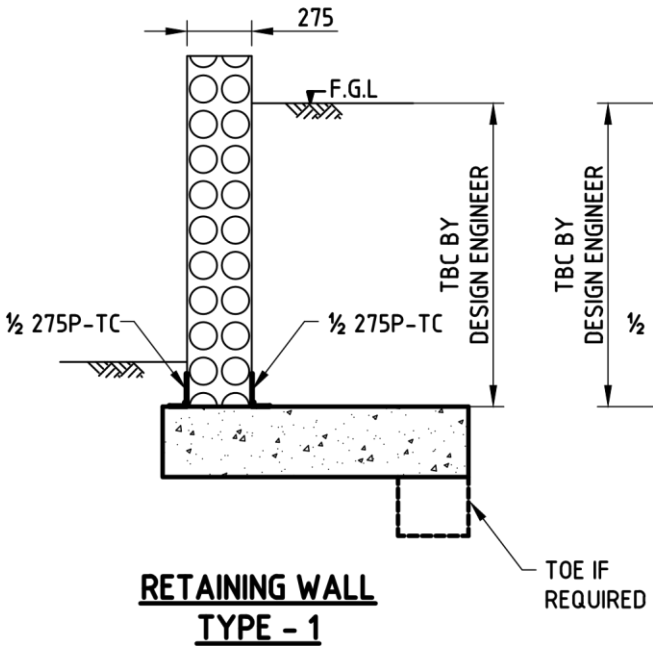
LIQUID STORAGE TANKS

275 DINCEL RADIUS SIZES

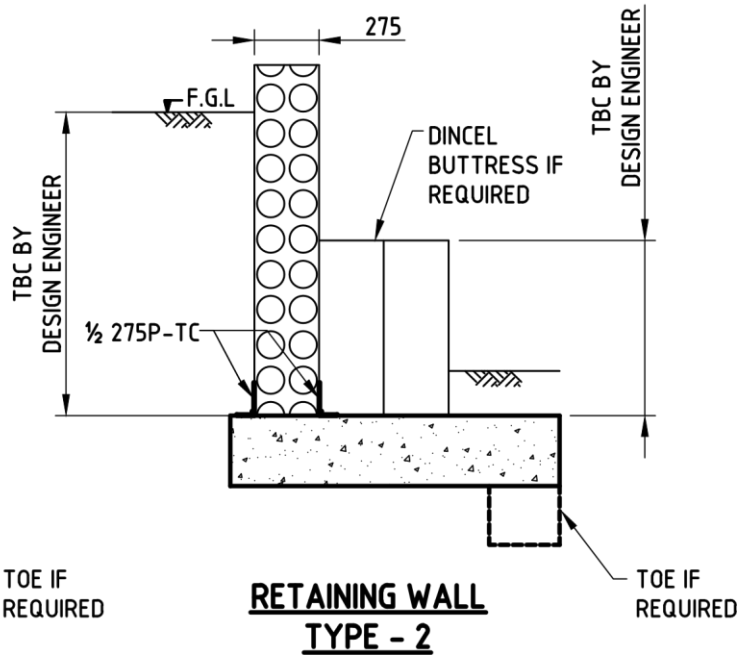


TYPICAL FREESTANDING 275 DINCEL WALL DETAILS

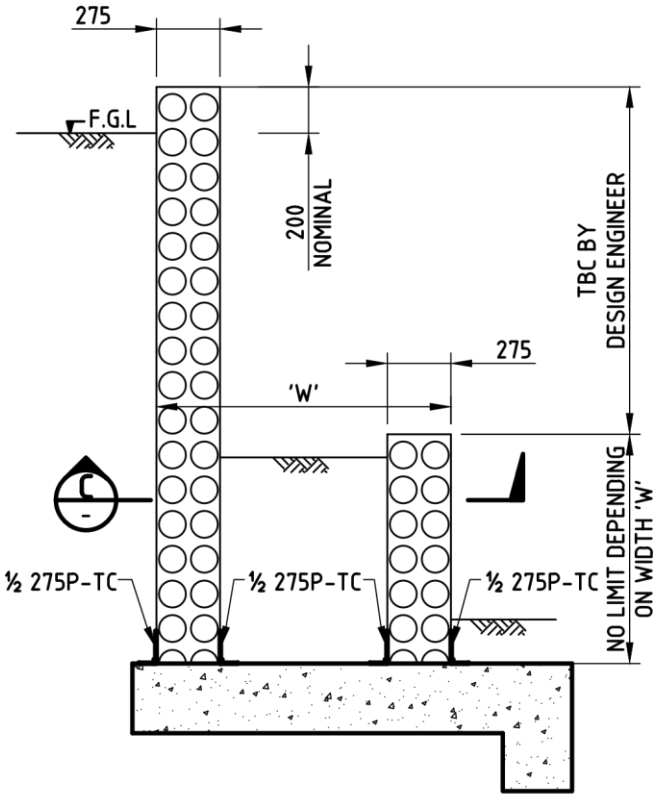
TYPICAL FREE STANDING 275 DINCEL WALL DETAILS



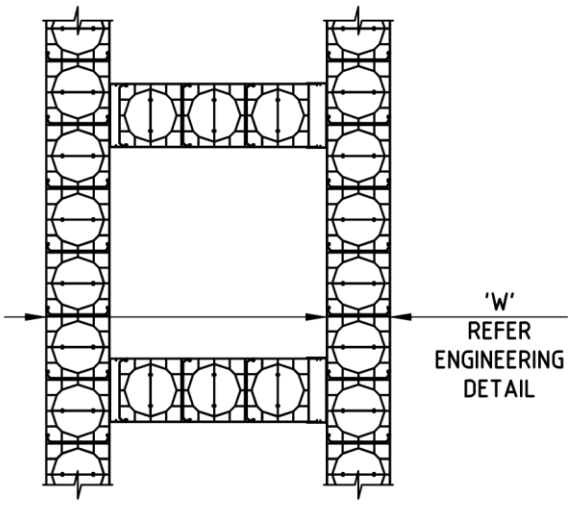
RETAINING WALL TYPE - 1



RETAINING WALL TYPE - 2

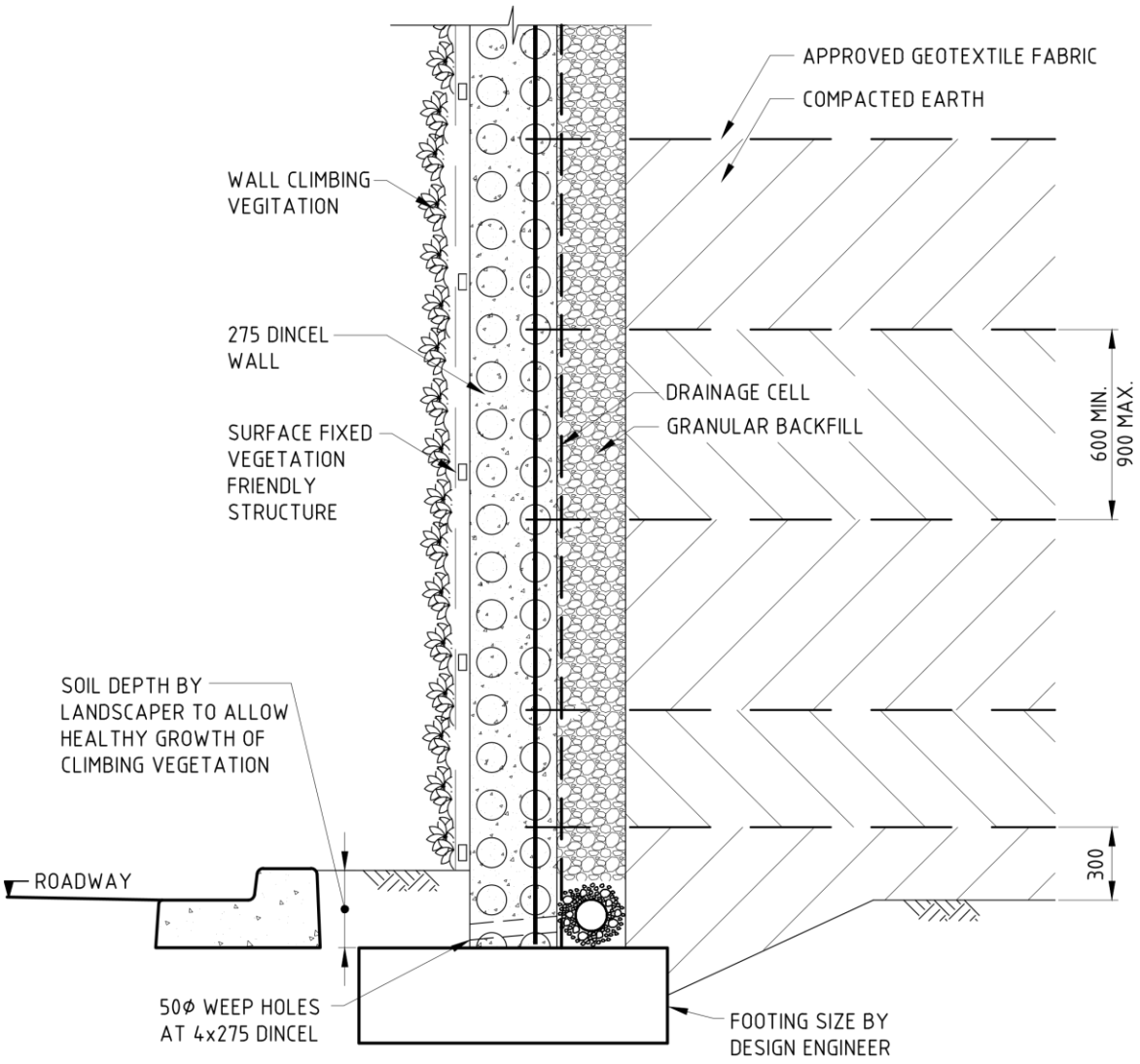


RETAINING WALL TYPE - 3



CELLULAR EARTH RETAINING DETAIL C

275 DINCEL REINFORCED EARTH GREEN RETAINING WALL



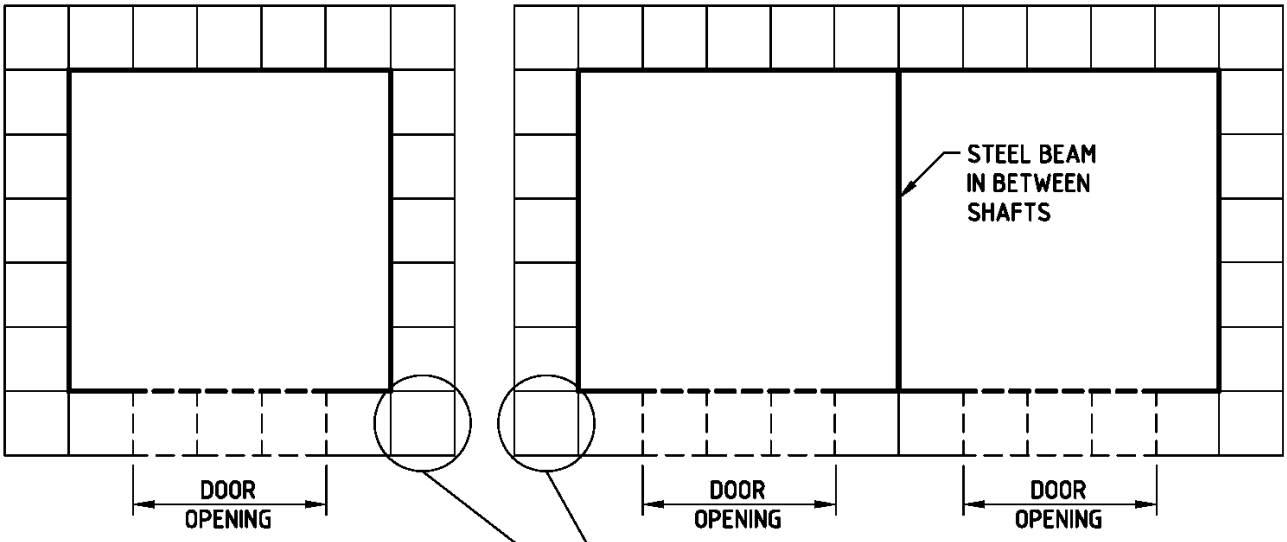
275 DINCEL REINFORCED EARTH
GREEN RETAINING WALL

ADVANTAGES

- Most cost and time effective construction.
- Least expensive and desirable wall finish to blend in the green environment.
- Roadway immediately serviceable after the concrete placement of 275mm Dincel Wall.
- Roadway and reinforced earth compaction behind concrete filled Dincel Wall can be constructed simultaneously.
- Compaction/earth reinforcement is at least 30% to 50% faster and continuous operation by a single trade (wall installation is not in the critical path of the compacted filling material behind Dincel Wall).

LIFT/STAIR SHAFTS

REFER DINCEL 275 LIFT DRAWING FOR DETAILS

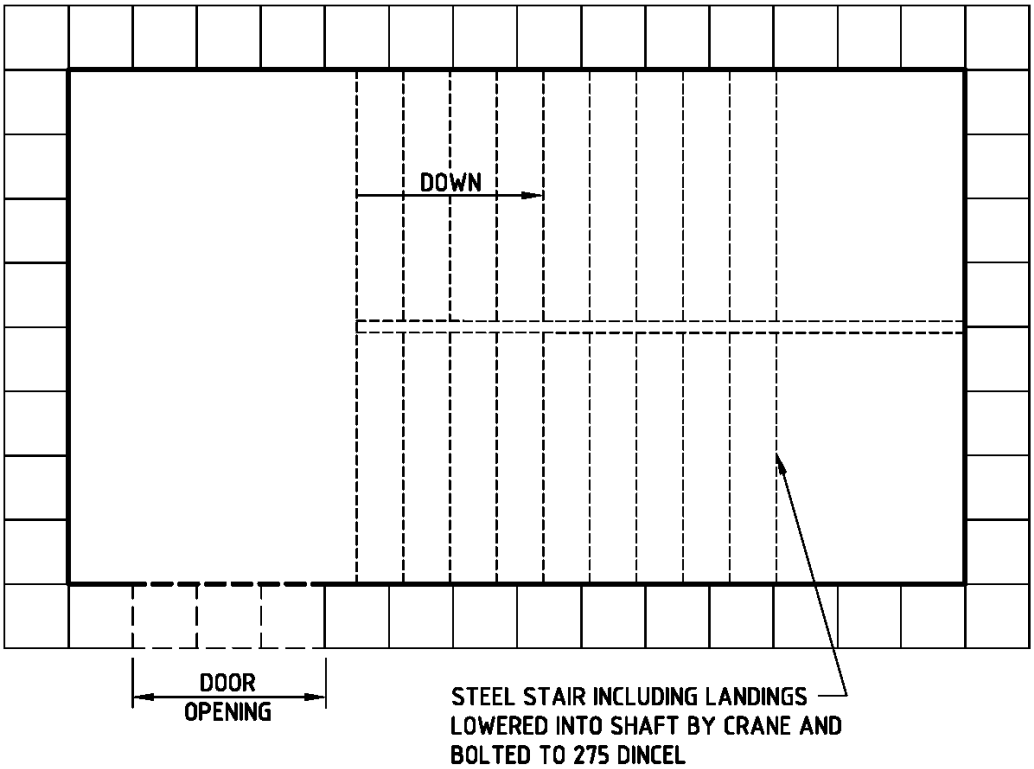


SINGLE LIFT SHAFT

REFER TO DETAIL 1/8 OR CONVENTIONAL FORMWORK AT THE CORNERS

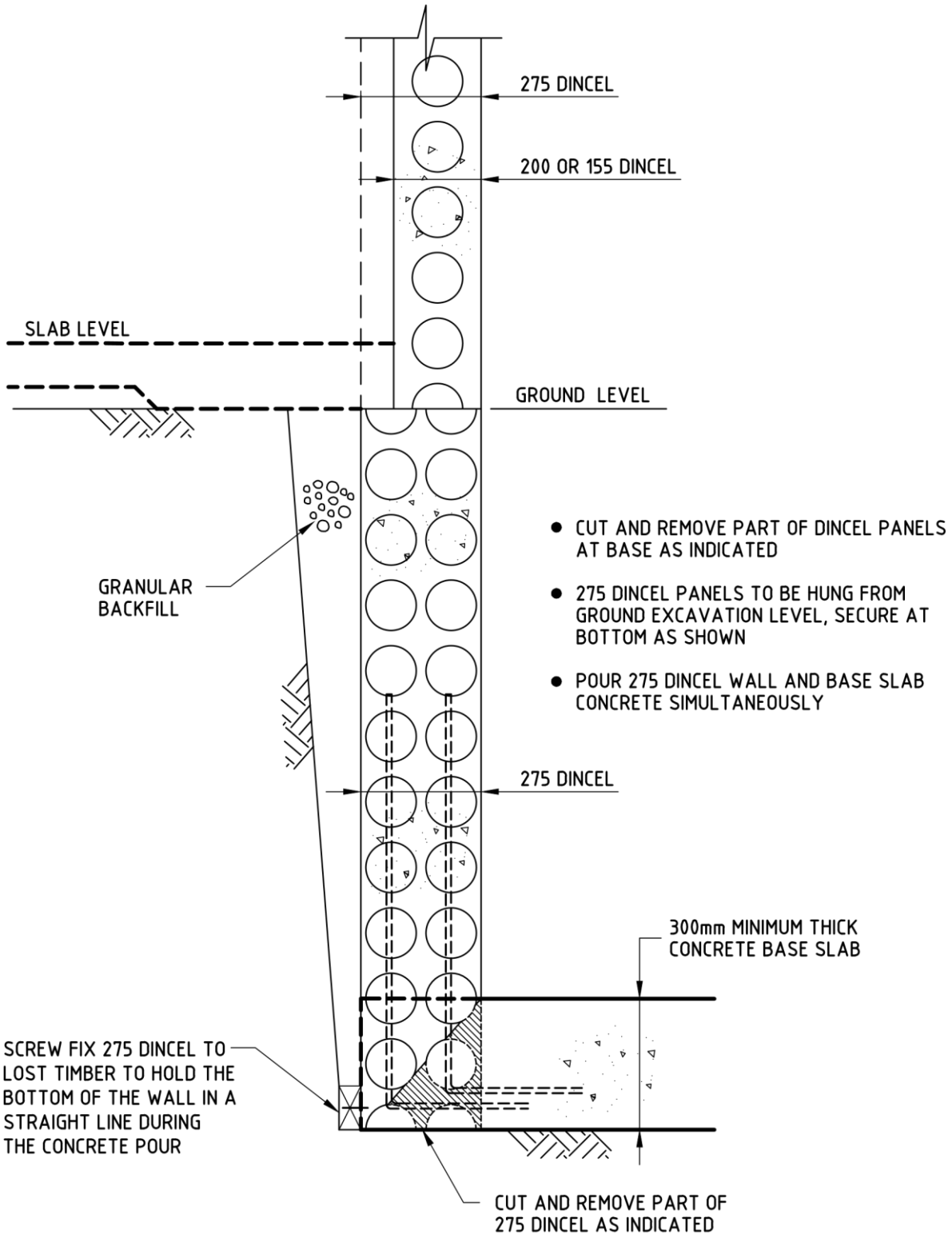
DOUBLE LIFT SHAFT

(TRIPLE LIFT SHAFT SIMILAR)



STAIR SHAFT

TYPICAL LIFT PIT BASE DETAILS

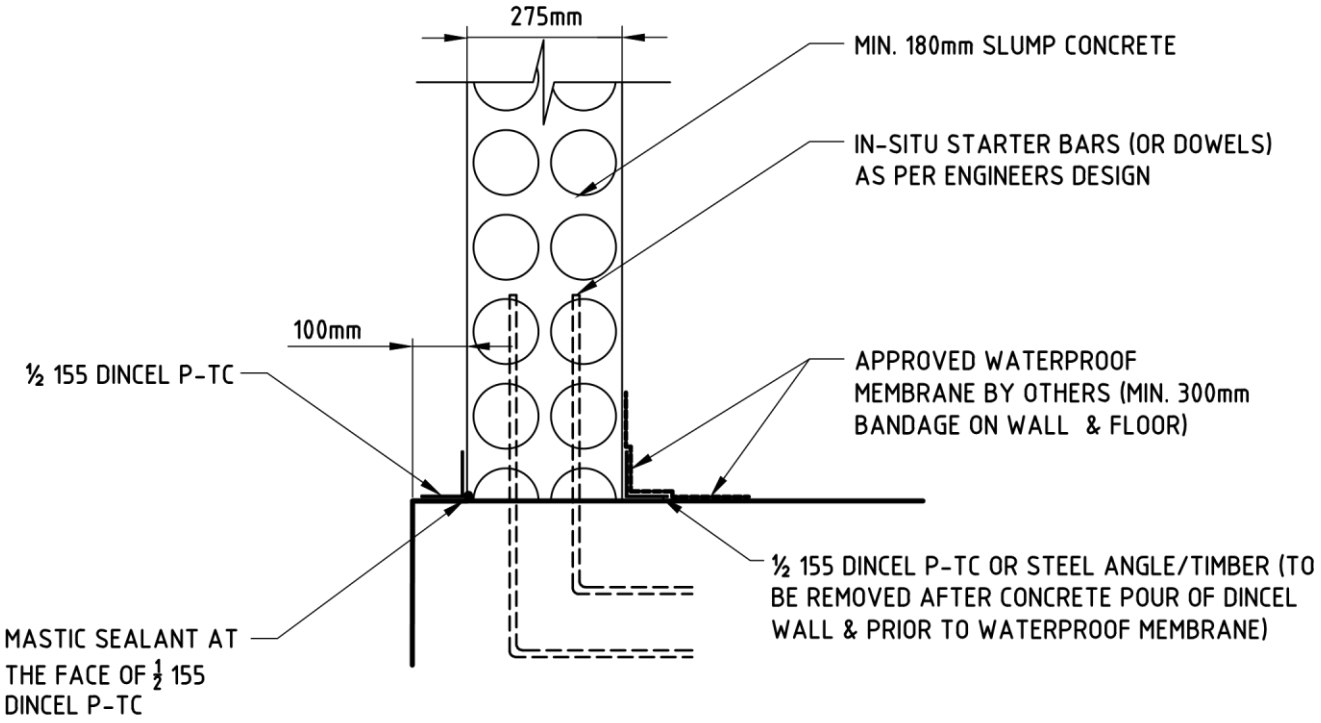


OPTION 1

MONOLITHIC CONSTRUCTION

TYPICAL LIFT PIT BASE DETAILS

REFER TO ENGINEERS DESIGN FOR WALL REINFORCEMENT
LIFT BASE IS ABOVE PERMANENT WATER TABLE



OPTION 2

NO DINCEL ACCESSORY PROFILES ALLOWED UNDERNEATH THE DINCEL WALL
OPTION 2 IS ONLY RECOMMENDED WHERE FOOTING IS ABOVE THE PERMANENT WATER TABLE

TYPICAL LIFT PIT BASE DETAILS

REFER TO ENGINEERS DESIGN FOR WALL REINFORCEMENT

ALWAYS BEGIN OPPOSITE CORNER TO DOOR OPENING OR BASEMENT ENTRY OPENING

INSTALLATION METHODOLOGY →

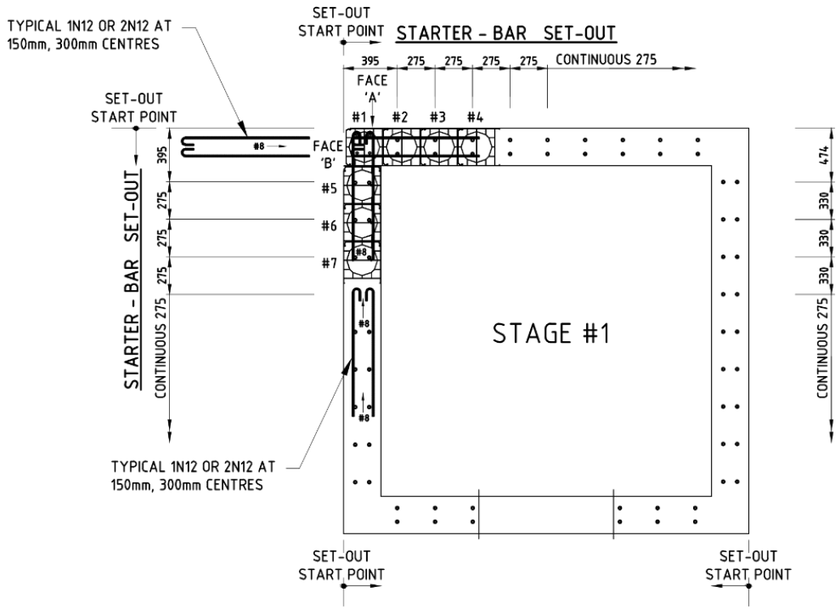
#1	
#2 #3 & #4 #5 #6 & #7 #8	ASSEMBLE PANELS 1, 2, 3 & 4 5, 6 & 7
	INSTALL HORIZ. CORNER HOOK BARS AT REQUIRED CENTRES.
#9	PLACE VERT. BARS IN CORNER TO MAINTAIN POSITION OF HOOK BARS

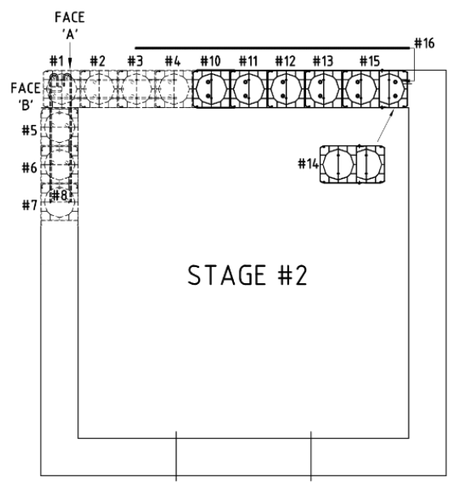
→

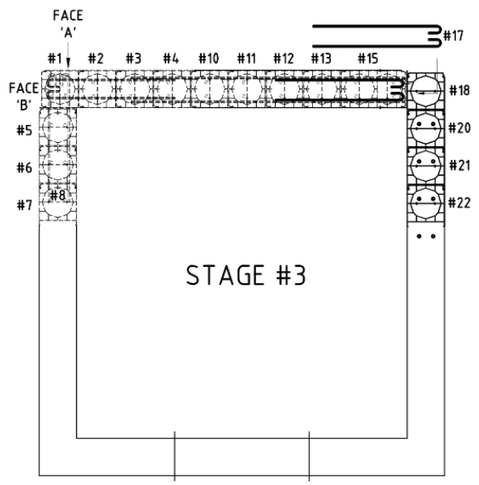
#10 – #13	ASSEMBLE PANELS #10, #11, #12 & #13
#14	MODIFY PANEL TO SUIT REQUIRED DIMENSION. INSTALL MODIFIED PANEL INTO MAIN PANEL. SCREW FIX.
#15	INSTALL #14 AS ONE COMPLETE UNIT.
#16	INSTALL HORIZ. REINFORCEMENT.

→

#17	PRIOR TO ASSEMBLING CORNER PROFILE, INSTALL HORIZ. CORNER HOOK BARS AT REQUIRED CENTRES.
#18	INSTALL CORNER PROFILE
#19	SLIDE HOOK BARS BACK INTO CORNER PROFILE.
#20 – #22	CONTINUE PANEL INSTALLATION.

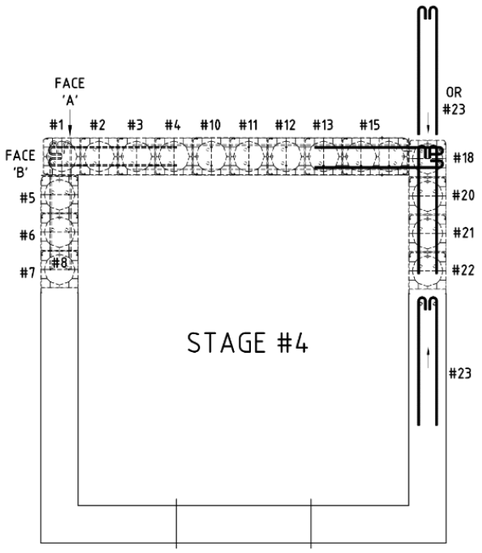


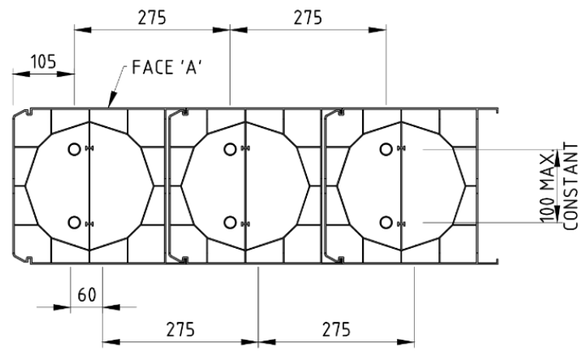




→

#23	SLIDE HOOK BARS INTO CORNER PROFILE.
#24	PLACE VERT. BARS IN CORNER TO MAINTAIN POSITION OF HOOK BARS.





275mm PROFILE: COLUMN STARTER BAR SETOUT

OPTION 1

275mm PROFILE: REINFORCEMENT INSTALLATION WITH N12 HOOK BARS AT BASEMENT, TANK WALLS, LIFT/STAIR SHAFTS

(REFER OPTION 2 WHERE ENGINEER SPECIFIED BIGGER THAN N12 BARS WHICH MAY BE THE CASE FOR HIGH RISE LIFT/STAIR SHAFTS)

INSTALLATION METHODOLOGY →

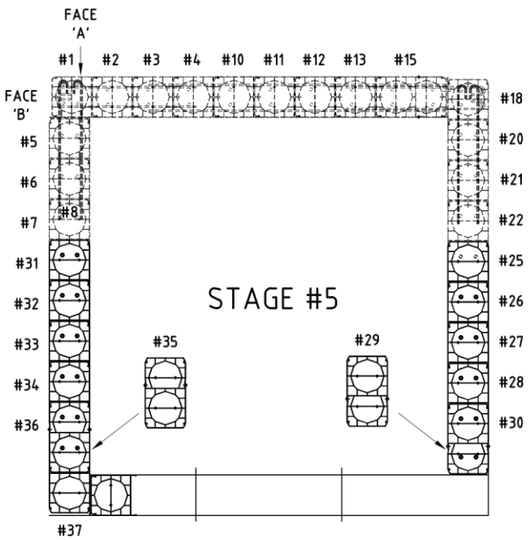
#25 - #28 #31 - #34	CONTINUE PANEL INSTALLATION.
#29 & #35	MODIFY PANEL TO SUIT REQUIRED DIMENSION. INSTALL MODIFIED PANEL INTO MAIN PANEL. SCREW FIX.
#30 & #36	INSTALL #30 & #36 AS COMPLETE UNIT.
#37	INSTALL CORNER PROFILE

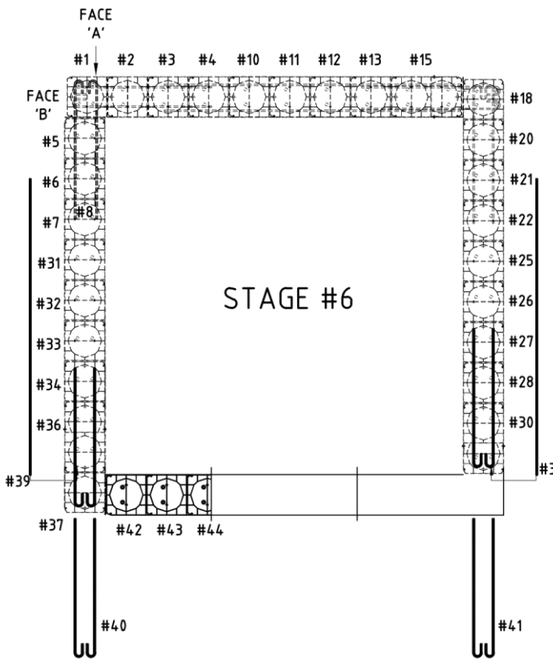
→

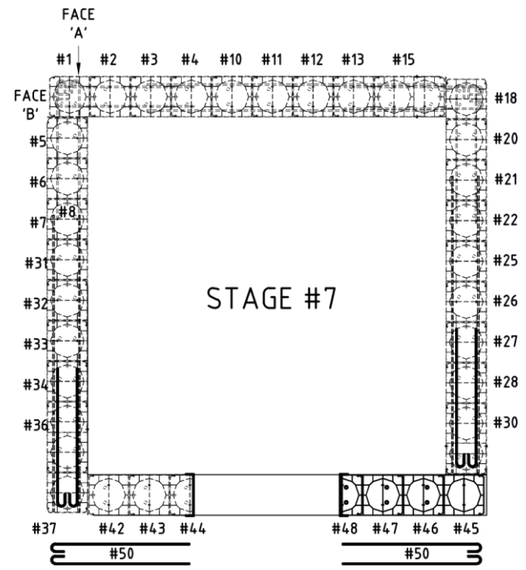
#38 & #39	INSTALL HORIZ. REINFORCEMENT.
#40 & #41	INSTALL HOOK BARS.
#42, #43 #44	CONTINUE PANEL INSTALLATION.

→

#45	INSTALL CORNER PROFILE
#46 #47 #48	CONTINUE PANEL INSTALLATION.
#49	SLIDE HOOK BARS BACK INTO CORNER PROFILE.
#50	INSTALL HOOK BARS INTO #44 #43 #42 & #37 & #48 #47 #46 #45
#51	INSTALL P-TC'S (TOP CAPS) TO SIDE & HEAD OF OPENING







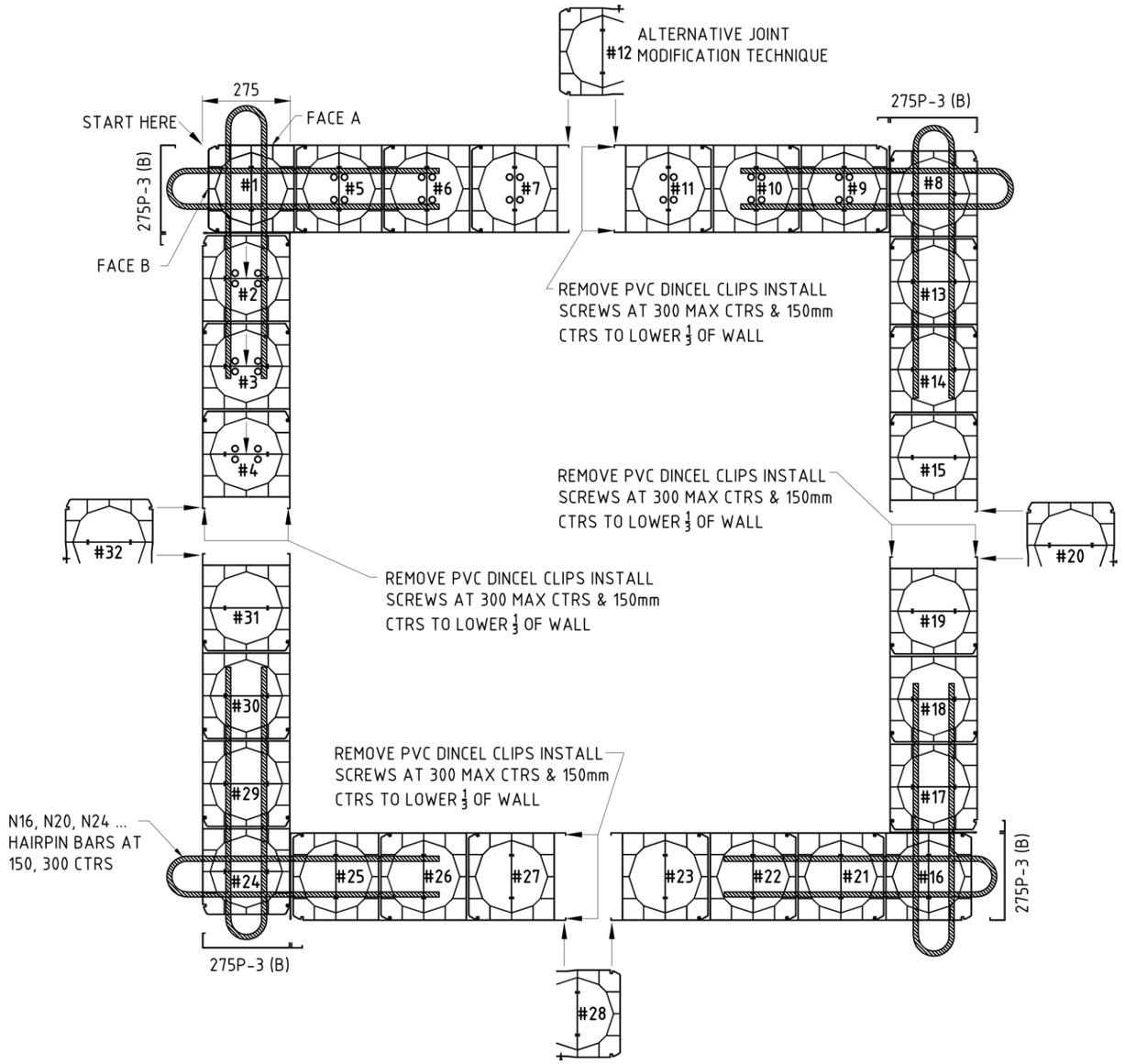
→

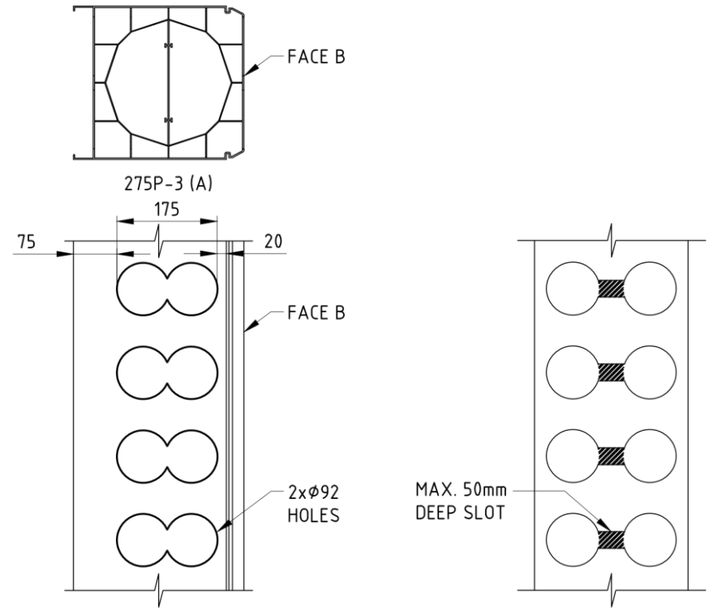
#52	INSTALL VERT. CORNER BARS TO SECURE HOOK BARS.
#53	INSTALL SNAP-ON 'END CAPS' TO 4 CORNERS.
275 mm Profile End Cap	END- CAPS ARE SCREW, REFER TO THIS MANUAL
TOP CAPS & END CAPS ARE TO BRACED TO AVOID BULGING	

OPTION 1

275mm PROFILE: REINFORCEMENT INSTALLATION WITH N12 HOOK BARS AT BASEMENT, TANK WALLS, LIFT/STAIR SHAFTS

(REFER OPTION 2 WHERE ENGINEER SPECIFIED BIGGER THAN N12 BARS WHICH MAY BE THE CASE FOR HIGH RISE LIFT/STAIR SHAFTS)



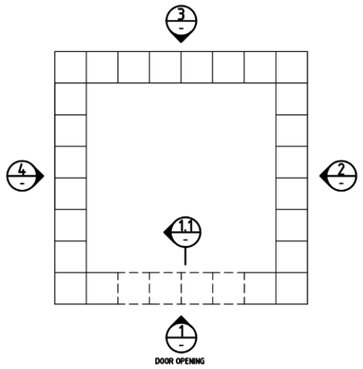


OPTION 2

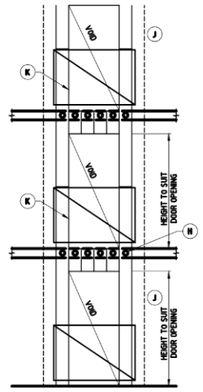
275mm PROFILE: REINFORCEMENT INSTALLATION AT LIFT/STAIR SHAFTS WHERE ENGINEER SPECIFIED CORNER BARS BIGGER THAN N12 BARS

1) PROVIDE 2x95mm (175mm WIDE) DIAMETER HOLES IN FACE A OF PROFILE #1
2) CUT AND REMOVE MAX. 50mm SLOT BETWEEN PRE-DRILLED HOLES ON FACE B
3) PLACE ALL PROFILES INTO POSITION BY LIFTING OVER STARTER BARS
4) PUSH THE HAIRPIN OR 'U' BARS INTO POSITION
5) PLACE ALL VERTICAL BARS AND HORIZONTAL BARS

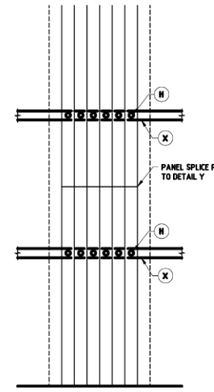
OPTION 2 – 275mm PROFILE: REINFORCEMENT INSTALLATION AT LIFT/STAIR SHAFTS WHERE ENGINEER SPECIFIED CORNER BARS BIGGER THAN N12 BARS



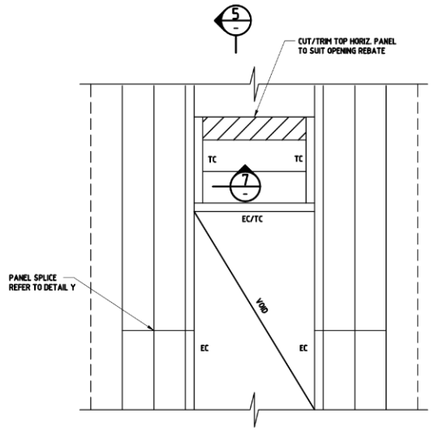
KEY PLAN



1 ELEVATION DOOR OPENING

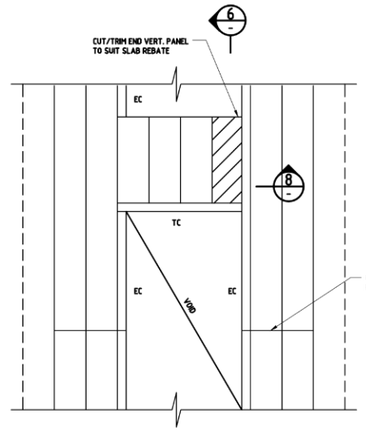


2 3 4 ELEVATION SIDE/BACK WALL



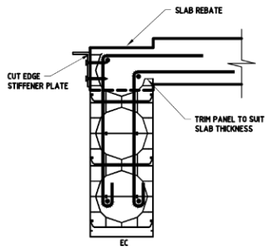
ELEVATION OPENING HEADER HORIZONTAL PANELS

NOTE: SECURELY PROP OPENING
EC = END CAP
TC = TOP CAP

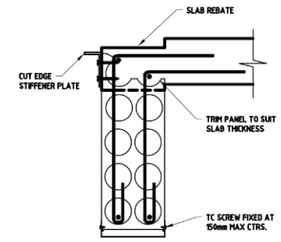


ELEVATION OPENING HEADER VERTICAL PANELS

NOTE: SECURELY PROP OPENING
EC = END CAP
TC = TOP CAP



SECTION 5



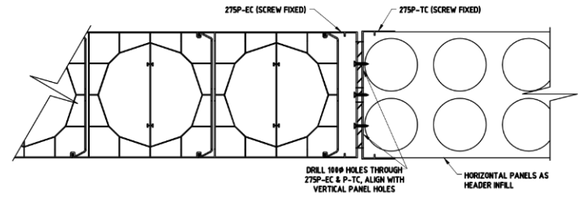
SECTION 6

1) THE SYSTEM DESCRIBED CAN BE APPLICABLE TO:
   - LIFT SHAFTS
   - STAIR SHAFTS (PREFABRICATED STAIR FLIGHTS LOWERED BY CRANES CAN BE BOLTED ON THE CONCRETED DINCEL WALL

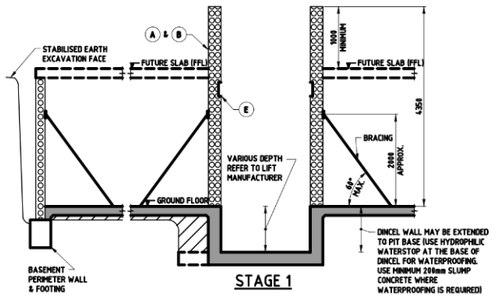
2) BUILDER MAY PREFER NOT TO REMOVE UNCONCRETED DINCEL PANELS AT THE DOOR OPENINGS UNTIL LIFT, STAIRS ARE COMPLETED FOR FALL ARREST PURPOSES. THE DINCEL DOOR PANELS ADJACENT TO CONCRETED DINCEL PANELS WILL BE REMOVED BY CUTTING AT THE FLOOR LEVEL

3) PLACEMENT OF UNI-STRUT BY THE LIFT INSTALLER TO BE INSTALLED BY ANCHORING AT THE TIME OF LIFT INSTALLATION

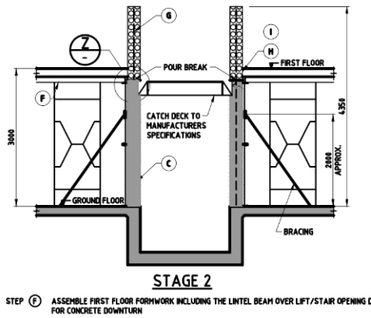
4) CONCRETE SLUMP TO BE 180mm MIN. AT WALL



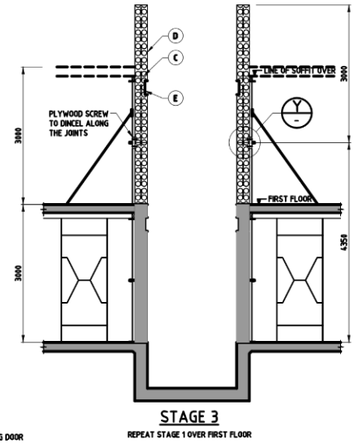
DETAIL HEADER 7



STAGE 1

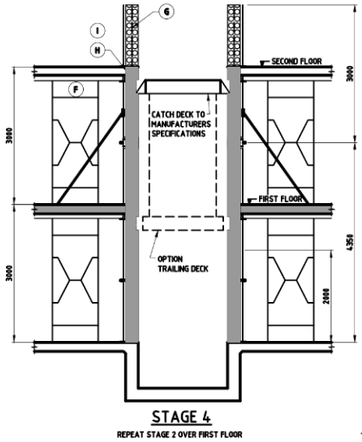


STAGE 2



STAGE 3

REPEAT STAGE 1 OVER FIRST FLOOR



STAGE 4

REPEAT STAGE 2 OVER FIRST FLOOR

STEP (A) PLACE 2 x 275 DINCEL PANELS WITH PRE-SCREWED INTERNAL CORNER AT EACH CORNER (REFER DETAIL A) OF THE PROPOSED LIFT SHAFT AND ATTACH BRACING (TUBULAR BRACING WITH TURN BUCKLE)

STEP (B) INSTALL REMAINING WALL MODULES & BRACING (REFER TO KEY PLAN & ELEVATIONS)

STEP (C) INSTALL HORIZ. REINFORCEMENT TO SLAB SOFFIT LEVEL (PLATFORM LADDER OR MOBILE SCAFFOLD MAY BE REQUIRED)

STEP (D) CLOSE THE CORNERS (REFER DETAIL D) TO SUIT SLAB SOFFIT OVER AND SECURE THE DINCEL TO THE FORMED DECK (REFER DETAIL X FOR SECURING DINCEL TO FLOOR DECK)

STEP (E) CUT & INSERT REBOX'S FOR CATCH DECK/COVER PLATES REQUIRED AS DETAILED (Z)

STEP (F) ASSEMBLE FIRST FLOOR FORMWORK INCLUDING THE LINTEL BEAM OVER LIFT/STAIR OPENING DOOR FOR CONCRETE DOWNTURN

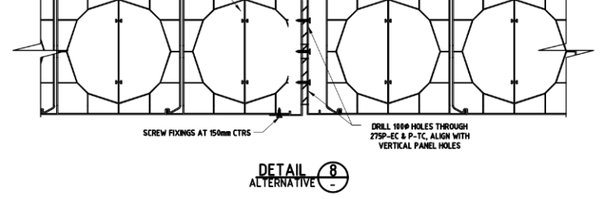
STEP (G) INSTALL VERTICAL REINFORCEMENT OFF FORMED DECK, ENSURE BARS ARE LOWER THAN DINCEL PANELS, ALTERNATIVELY TIE VERTICAL REO WITHIN PANELS WHEN LAYING DOWN & JOINTLY INSTALL WITH PANELS

STEP (H) PROVIDE 1000 HOLES AT EACH DINCEL PANEL, PROVIDE 'L' BARS TO THE FLOOR SLAB TO DINCEL WALL (REFER TO ELEVATIONS 1 TO 4)

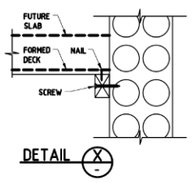
STEP (I) POUR DINCEL WALL THROUGH 1000 HOLES (WITHIN SLAB DEPTH) AND UP TO THE FORMED DECK LEVEL

STEP (J) ENSURE ALL REBATED LIGHT & BUTTON BOXES ETC. ARE PLACED & SECURELY FIXED AND ALL OPENINGS ARE BRACED IN ALL DIRECTIONS BEFORE CONCRETE POUR

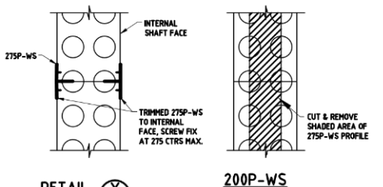
STEP (K) ENSURE ALL DOOR OPENINGS ARE SECURELY FIXED AS PER THE OH & S REQUIREMENTS



DETAIL ALTERNATIVE 8

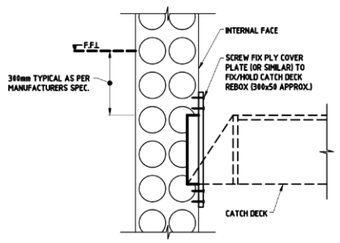


DETAIL X

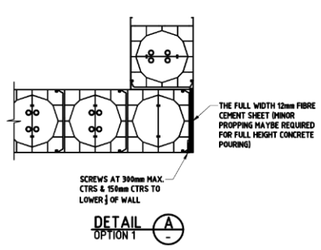


DETAIL Y

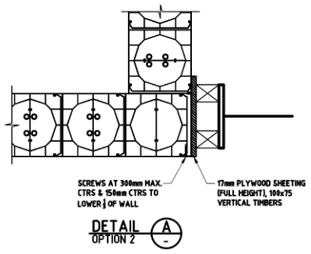
200P-WS



DETAIL Z

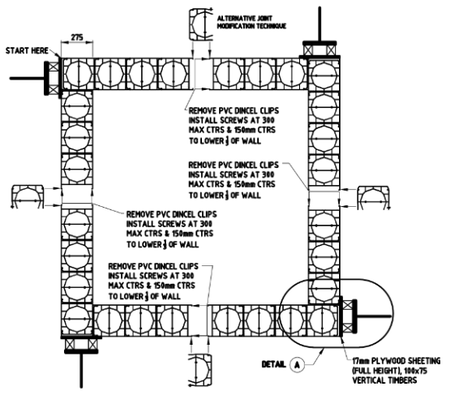


DETAIL A OPTION 1



DETAIL A OPTION 2

TYIPCAL CORNER DETAIL



275mm PROFILE: INSTALLATION METHODOLOGY SEQUENCE

(REFER TO PREVIOUS PAGES FOR METHODOLOGY SEQUENCE)

DINCEL CONSTRUCTION SYSTEM

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DRAWING TITLE: DINCEL 275 LIFT/STAIR SHAFTS DETAILING

SCALE:
DRAWING No.: D 275 LIFT
AMENT:
DATE: JUL'15
DRAWN: DF