Schedule of Materials to be used in the Shopping Arcade at 147 Whitehorse Road, Ringwood, being built for Ringwood Investments Pty. Ltd.

The whole of the work to be carried out in accordance with the working drawings, structural details and other details to be submitted and to the satisfaction of the Architect -

P.E. JORGENSEN
COLLINS HOUSE
360 COLLINS STREET,
MELBOURNE C.1

Phones:

Office MU2469
Home LB3902

SCHEDULE OF MATERIALS:

The whole of the floor slabs, columns, beams and roof slabs shall be reinforced concrete to the sizes and depths and reinforced in accordance with the drawings and future instructions of the structural engineer - W.L. Irwin 441 St. Kilda Road, Melbourne.

The Ground floor slabs shall be poured in a 4" deep bed of screenings covered with a layer of building paper. A 3" diameter agricultural drain, laid to a minimum fall of 1 in 60 shall be placed below the floor slabs along the length of the east side of the building and shall discharge into sumps and the street channels in both Melbourne Street and Whitehorse Road.

The ground floor slab shall be screeded for final floor finishes in the shop areas, and in the arcade and stairs the slabs shall be finished with coloured Granalithic paving with a non slip finish. The stair treads shall have 4 carborundum strips per tread.

The side boundary walls shall be 11" brickwork, the brickwork to be struck on the external faces and plastered on the internal faces. A straight vertical joint in the external 4½" brickwork shall be formed in the center of each column bay.

The internal partition walls between shops shall be 4" terra cotta blocks plastered both sides.

The shop fronts onto the arcade and onto Melbourne Street and Whitehorse Road shall be glazed aluminium frames, with either sliding or hinged doors and moveable glass louvres to provide ventilation to the shops.

The shop ceilings shall be formed by the plastered soffit of the first floor slab.

The first floor slab shall be finished similarly to the ground floor slabs, the open gallery giving access to the offices shall be finished with coloured granalithic with a non slip finish.

The partition walls between offices shall be 3" terra cotta block walls plastered on both sides.

The office ceilings shall be formed by the plastered soffit of the roof slab.

The first floor walls on to the gangway and onto the Melbourne Street and Whitehorse Road frontages shall be aluminium frame walls glazed from 3'0" sill to the ceiling and the panel wall from the floor to the sill line shall be a terra cotta block wall rendered internally and the external face shall be sheeted with metal panels set in the aluminium frame.

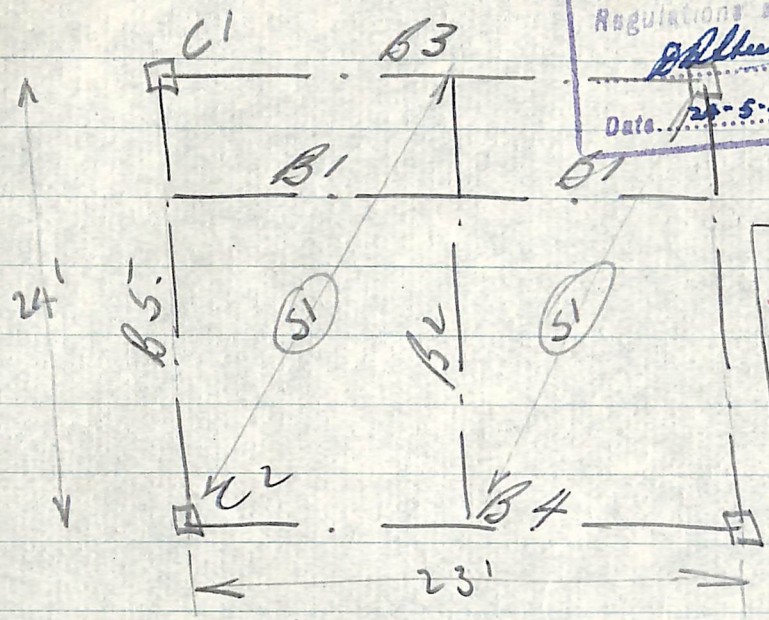
The flat roofs of the concrete cantilever verandahs and the roof terrace on the south side of the building shall be graded to the outlets and finished with 1" of Neuchatel Asphalt which will be finished with a layer of marble chips.

The main flat roof shall be lined with splayed battens fixed to the concrete and laid to fall to the roof outlets. The battens shall be sheeted with 5/16" - tempered Maconite and the whole covered with 3 layers of Malthoid laid in an approved manner.

Ringwood Shopping Centre

Architect:- P.E. Jorgensen

W. L. IRWIN, B.C.E., A.M.I.E. Aust.
CONSULTING ENGINEER
441 ST. KILDA ROAD
MELBOURNE
Telephone: WIN. 6211



Note p/p. 6 to 15 are comps. of beams, cols & flrs. of a typical bay.

First Floor — Typical Bay

Slab S1.

L = 11'6"

5" slab = 60
Finish & render = 20
Partns = 20
l.l. = 50
150

$d = \frac{15.0 \times 132}{12 \times 125} = 13.2$

5" slab.

V = 850#

$f_s = \frac{150 \times 132}{12 \times 1500 \times 4.5} = 0.25$

B1. L = 11'6". w = 5' (ave.) of conc. block & metal facing

@ 50 = 250

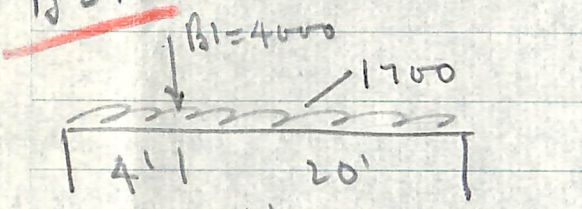
Self = 100

350

L = 11'6"

V = 2000 #

B2.



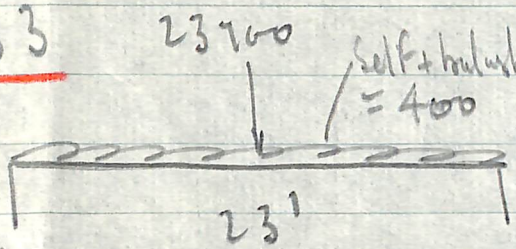
20400
3300
23700

20400
900
21100

21" x 12" at end

24" x 12" at centre.

B3



4600
11850
16450

$M = \left(\frac{4.00 \times 23^2}{8} + \frac{23700 \times 23}{4}\right) \frac{8}{12}$

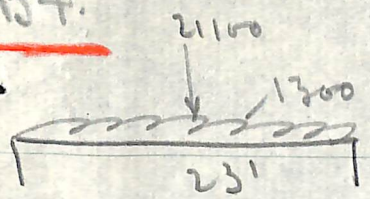
= 108 ft K.

$A_s = \frac{108}{1.1 \times 17} = 3.73$ 4-1 1/8" ϕ.

21" x 12".

3/8" ϕ ⊓ @ 3".

B4.



14300
650
10550
25500

~~24"x12"~~

Rect. = 36" x 9"

W.

11' wall @ 160 = 1160

Self = 240 / 13300

B4 is rect. beam because of distributing wall.

$M = \left(\frac{13300 \times 23^2}{8} + \frac{21160 \times 23}{4} \right)$ ~~x~~

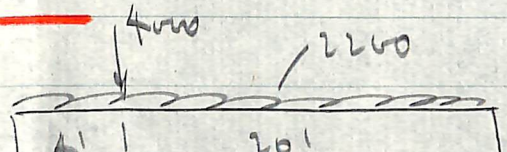
= 207 ft k. — (S.B.M).

$\leftarrow \times \frac{8}{12} = 136 \rightarrow$

$d^2 = \frac{207 \times 12}{9 \times 165} \times \frac{8}{12} = 1160$ $d = 33"$

$A_s = \frac{136}{1.7 \times 30} = 2.68$ 2-1 1/8" + 1-1"

B5.



26400
3300
29700

24'

26400
700
27100

21" x 14" end

24" x 14" centre

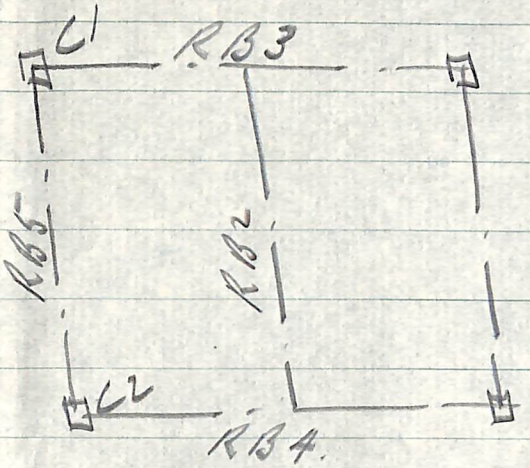
From slab = 17700

10' of 4½" wall = 500

2200

Roof Beams

Typical bay



Nr RB1 – nr steps in slab. ?

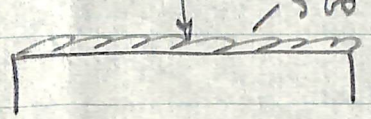
V slab = 850 ditto 1st fl.

5" slab = 60
finishing & finish = 40
hh = 50
150

RB2 L = 24' wt = 1760#

V = 2040

RB3 – May be uneven to roof – assume 3' of 9" beam = 300
self = 200
500



10200
5750
15950

Typical Columns.

C1

			Floor load.	Total ld.
R. to 2nd	= 2×RB3 32000	+ RB5 20400	= 52400	= 52400
2nd to 1st	= 2×B3 32400	+ B5 29700	= 62600	= 115000
1st to G.	=		= 62600	= 177600 = 17"×17"
G to ftg	= 2×GB3 20600		= 20600	= 198200 = 18"×18"

See p11 for grd Fl. beams.

C2.

			Fl. ld.	Total ld.
R to 2nd	= 2×RB4 32000	+ RB5 20400	= 52400	= 52400
2nd to 1st	= 2×B4 51000	+ B5 27000	= 18000	= 130400
1st to 2nd	=		= 18000	= 208400 = 18"×18"
G. to ftg	= 2×G.B.4 30000		= 30000	= 238400 = 20"×20"

Typical Grd. Fl. beams.

G.B4. L = 23'.

11' wall = 1100

Self = 200 / 1300

$d^2 = \frac{1300 \times 23^2 \times 12}{12 \times 11 \times 165} = 380$

V = 15600#

d = 19.4"

24" × 11"

$A_s = \frac{1300 \times 23^2}{12 \times 1.7 \times 18.9} = 1.8$

3 - 7/8" ϕ tve + -ve.

1/4" ϕ ▯ s @ 4" - 2'0", 15" to ϕ.

G.B3. L = 23'

7' wall = 700

Self = 200 / 900

$d^2 = 380 \times \frac{9}{13} = 263$ d = 16.4

24" × 11".

V = 10300#

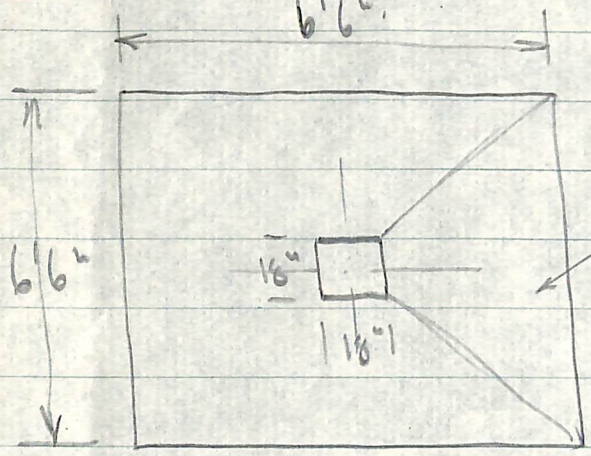
$A_s = \frac{9}{13} \times 1.8 = 1.25$

2 - 7/8" ϕ tve + ve.

1/4" ϕ ▯ s @ 15" thro. out.

Typical footings.
(At 5000 #/ft².)

C1. W = 198.2 k A = 40 ft² = 6'6" × 6'6".



$p(net) = \frac{198.2}{42.25} = 4.7\ k/ft^2$.

Area of wedge = $\frac{42.25 - 2.25}{4} = 10\ ft^2$.

∴ V per side = 47 k.

$M(from\ CL2) = 2350\left\{1.5 + \left(\frac{4}{3} \times 2.5\right)\right\} 6.25 = 71000\ ft\text{-}lb$

Taking b = 30" $d^2 = \frac{71000}{30 \times 125} = 190$ D = 18 − x

Make D = 24". ✓

$A_s = \frac{71000}{1500 \times 16} = 2.96$ = 0.5 per ft. — ✗

(18.9) (2.5) = 0.42 " " — ✓

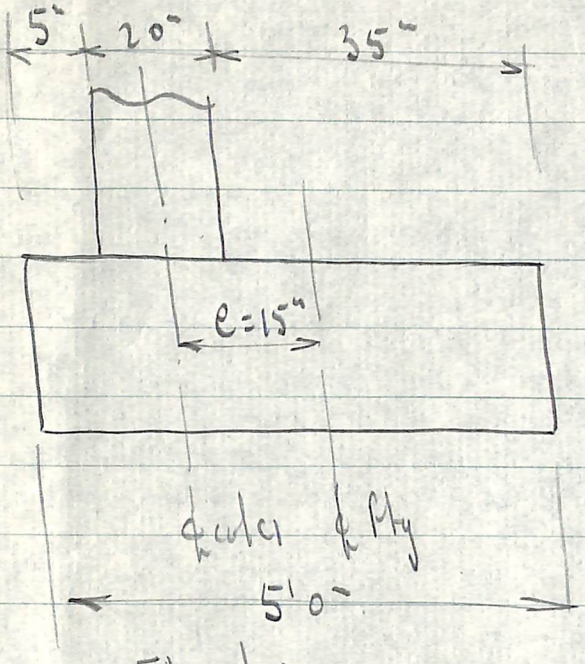
6'6" × 6'6" × 2'0" — 3/8" ϕ @ 3" crs b. w?

Bond V = 47 k $\mu = \frac{47}{24.95 \times 18.9} = 85^{lb}/in^2$ O.K ✓

Σo for 25 - 3/8" ϕ.

$\Sigma o_{req'd} = \frac{47000}{180 \times 18.9} = 13.6$

W = 238.4 A = 48 ft² = 10'0" × 5'0".



Elevation

M = W.e.

= 238.4 × 1.25 = 300 ft-k.

∴ d² (tie beam) = $\frac{300 \times 12}{18 \times 150}$

= 1100

d = 33" 36" × 18"

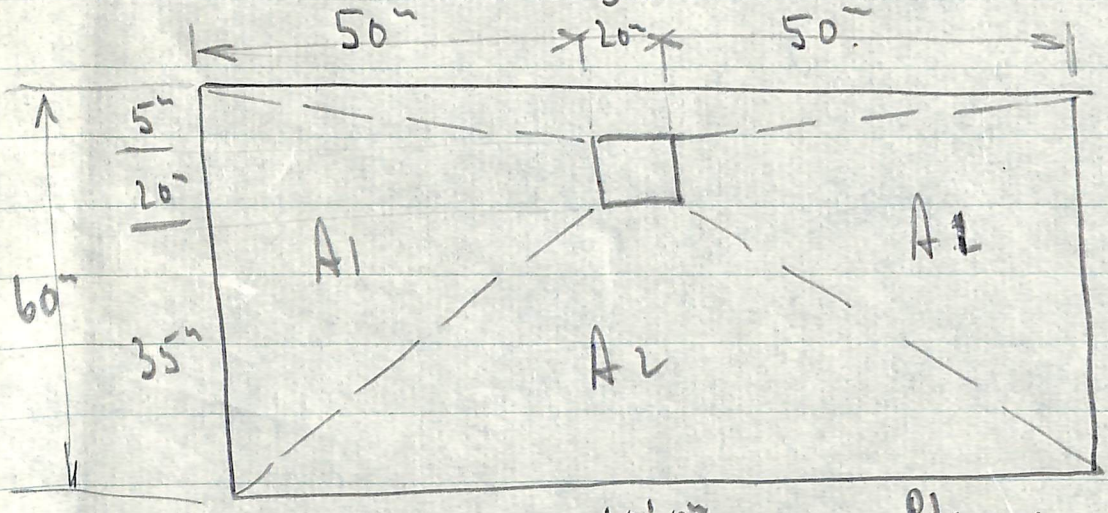
tie beam

$A_s = \frac{300}{1.7 \times 30} = 5.9$ 6 − 1⅛" ϕ.

Tail bd. reqd from C1 = V = $\frac{300}{24}$ = 12.5k Bond O.K.

No stirrups

Pressure = $\frac{238.4}{50}$ = 4.77 k/ft².



See plan prev. page.

A1 = $\left(50'' \times \frac{35''}{2}\right) + \left(50'' \times \frac{5''}{2}\right) + (50'' \times 20'') = 1000 \text{ in}^2$

$= 13.9 \text{ ft}^2$

Force in A1 = 13.9 × 4.77 = 66.3 k

This acts @ $\frac{\frac{2}{3}+\frac{1}{2}}{2} = \frac{7}{12} \times 50 = 30''$ from col. face

M = 66.3 × 2.5 = 166 ft k.

If d = 33" + h = 20" $K = \frac{166000 \times 12}{20 \times 1100} = 91$

O.K.

$A_s = \frac{166}{1.7 \times 30} = 3.25 = \frac{3.25}{4.5} = 0.72 \text{ in}^2/\text{ft}$

$= \frac{5}{8}''\phi @ 5'' \text{ crs.}$

A2 = (50 × 35) + (20 × 35) = 2450 in² = 17 ft².

(1750) (700)

∴ Force in A2 = 17 × 4.77 = 81 k.

$\frac{700}{2450} \times 81 = 23$ k acts @ 17.5" from col face

$\frac{1750}{2450} \times 81 = 58$ K cut out $\frac{2}{3} \times 35 = 23$" from cut. face

$M = (23 \times 17.5) + (58 \times 23) = \frac{1733}{12} = 145$ ft K.

$A_s = \frac{145}{1.7 \times 30} = 2.85 = \frac{2.85}{9.5} = 0.3$ in²/ft

= 3/8" ϕ @ 4½" crs

Summary

Flry. C2 = 10' x 5' x 3'

5/8" ϕ @ 5" crs x 9'6" long.

x 3/8 ϕ - 4½" " x 4'6" "

Checked - O.K.

End of typical beam

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