Verified RealEstate™

RE REGULATORY RECORD

RERA Document

The document as the regulator published it, reproduced in full behind this page.

Published for reference. The authority's own register is the operative record.

Verified RealEstate™
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India

hello@verified.realestate
+91 9996 12 9996
verified.realestate

DIGITALLY VERIFIED RECORD

SG STRUCTURAL ENGINEERS
ENGINEERS | ARCHITECTS 25

Dr. G.S.VENKATASUBRAMANI
M.E (Struct.), Ph.D., MI Struct. E., C.Engg., MICI., FIV, FIE (I), PE.,
Consulting Structural Engineer, Professional Engineer
Chartered Civil Engineer & Approved Valuer

STABILITY CERTIFICATE

(To be furnished while filing application for registration of building)

The detailed engineering and structure design of the proposed building comprising of basement +stilt + 5 floors at uppilipalayam village S.No 504/1 has been done by me/us based on the report of geotechnical investigation (soil test) done by Geodesign India Private Limited Report No.Geo-G-219-2025-26 Dated 27.12.2025 and considering the functional requirement of the building.

2. It is certified that among other factors, the proposed building has been designed to resist earthquake. I/We have checked various parameters and found that the proposed building would be safe.

3. I/We further certify that:

(i) The minimum grade of concrete is M20 & 25

(ii) The design and analysis has been done using the code of practice for plain and reinforced concrete as per IS 456, design loads as per IS Codes No IS 875 and design of earthquake resistant structure as per IS Code No IS 1893

4. The building will be safe and sound when used for the purpose for which it is designed.

Stamp and Signature

Dr.G.S.VENKATASUBRAMANI
Ph.D.,ME(Structural).,FIE,C.Engg(I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Structural Engineer Grade -1-CBE/SE/GR-1/07/2025,
Professional Engineer,
Chartered Civil Engineer & Approved Valuer,
53, M.A Palanisamy Street, K.K. Pudur Post
Coimbatore - 641 038

Encl.: Structural Design Calculation

DESIGN BASIS REPORT

PROPOSED APARTMENT BUILDING FOR

RR HOUSING, COIMBATORE.

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

CONTENTS

SL No.	PARTICULARS	PAGE No.
1.0	SCOPE	3
2.0	DETAILED DESCRIPTION FOR APARTMENT BUILDING	3
3.0	TECHNICAL SPECIFICATION	3
4.0	GENERAL	4
5.0	SITE LEVELS	4
6.0	STANDARDS AND CODES	4
7.0	LOADINGS	4
8.0	METHOD OF DESIGN	8
9.0	SOIL INFORMATION	9
10.0	DESIGN	9
11.0	FLOOR PLAN	10
12.0	STAAD IMAGE	14
13.0	DESIGN CALCULATION	15

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

1.0 SCOPE:

This Document covers the requirement of RCC structural Design of Apartment Building (RR IYAL) (Basement+Stilt+5) for RR HOUSING, Coimbatore.

2.0 DETAILED DESCRIPTION FOR APARTMENT BUILDING:

S. No.	Description	Description
1	Building Size	
1.1	Width of Building (O/O of wall)	22.1 m
1.2	Length of Building (O/O of wall)	66.88 m
2	Column Spacing	As per architectural drawings mentioned below.
3	Floor height	2.47m, 2.85m & 2.9 m from FFL
4	Headroom height	2.44m from terrace FFL
5	Staircase	RCC Staircase with waist slab.
6	Overhead tank	35981 Liters Capacity.
7	Expansion joint	Provided

3.0 TECHNICAL SPECIFICATION:

S. No.	Parameter	Specifications
1.	**Type of Building**	Rigid Frame Type
2.	**Design Consideration**	Designed as per IS CODE(Refer:6.0).
3.	**Geometrical Requirements of Components**	
3.1	Beams	RCC
3.2	Columns	RCC
3.3	Slab	RCC
4.	**Grades of Material**	
4.1	Grade of concrete	M25 & M20
4.2	Grade of steel	Fe500

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

4.0 GENERAL:

All design calculations are carried out in SI System.

5.0 SITE LEVELS:

FFL is assumed as (+) 0.6 m level from FGL.

6.0 STANDARDS AND CODES:

Designs are in accordance with the latest editions of the Standards and Codes of Practice as described below:

IS: 456 – 2000 (Reaffirmed in 2021) - Code of Practice for Plain & Reinforced concrete.

IS: 875-1987 & 2015 (Part 1to5)- Code of Practice for Design loads (other than Earthquake) for Buildings and structures.

IS: 1893-2016- Criteria for Earthquake resistant design of structures.

IS: 13920-2016– Ductile detailing of reinforced concrete structures subjected to seismic force.

7.0 LOADINGS:

Load and Load combinations are generally as per IS:875 (Part 1 to 5)-1987& 2015, unless noted otherwise.

Dead Loads:

Dead Loads are generally taken as per unit weights given in IS: 875 (Part 1)-1987 and as per construction elements like RC slab, floor finishes, screeds, waterproofing, masonry wall, etc.

The following table gives the density of the major materials.

MATERIALS	DENSITY (kN/m³)
PCC	24.0
Reinforced concrete	25.0
Light weight	9.0
Structural steel	78.5

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

A. BRICK MASONRY LOAD CALCULATION

Type-I (Basement Wall Load)

Height of the wall	=	2.47	m
Width of the wall	=	0.15	m
Unit Weight of the Brick Masonry	=	9.0	KN/m^3
Effective Height of the wall	=	2.47	m
Weight per meter length of wall	=	3.33	KN/m
Total UDL	≈	4.00	KN/m

Type-II (Main wall 150mm thick)
Stilt Floor

Height of the wall from beam top	=	2.85	m
Width of the wall	=	0.15	m
Unit Weight of the Brick Masonry	=	9.00	KN/m^3
Effective Height of the wall	=	2.85	m
Weight per meter length of wall	=	3.84	KN/m
Total UDL	=	4.00	KN/m

Type-III (Main wall 150mm thick)
Typical Floor

Height of the wall from beam top	=	2.9	m
Width of the wall	=	0.15	m
Unit Weight of the Brick Masonry	=	9.00	KN/m^3
Effective Height of the wall	=	2.9	m
Weight per meter length of wall	=	3.915	KN/m
Total UDL	=	4.00	KN/m

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

Type-IV(Parapet wall 150mm thick)

Height of the wall	=	1.22	m
Width of the wall	=	0.15	m
Unit Weight of the Brick Masonry	=	9.00	KN/m^3
Effective Height of the wall	=	1.22	m
Weight per meter length of wall	=	1.64	KN/m
Total UDL	=	2.00	KN/m

Type-VI (Main wall 150mm thick)

Terrace Floor

Height of the wall from beam top	=	2.44	m
Width of the wall	=	0.15	m
Unit Weight of the Brick Masonry	=	9.00	KN/m^3
Effective Height of the wall	=	2.44	m
Weight per meter length of wall	=	3.29	KN/m
Total UDL	=	4.00	KN/m

Stilt Floor and Typical floor Roof :

(i) Self weight of slab(Thk of slab* 25 KN/m^3)	=	3.125	KN/m^2
(ii) Floor finish, Ceiling finish & Fixtures	=	2.0	KN/m^2
(iii) Total dead load on slab	=	5.125	KN/m^2

Terrace floor and headroom floor Roof

(i) Self weight of slab(Thk of slab* 25 KN/m^3)	=	3.125	KN/m^2
(ii) Floor finish, Ceiling finish & Fixtures	=	2.5	KN/m^2
(iii) Total dead load on slab	=	5.625	KN/m^2

Live Loads:

Live Loads are considered as per IS: 875 – 1987 Part 2.

The load is considered as indicated below

i) Room & Toilet	=	2.00	KN/m2
ii) Balcony	=	3.00	KN/m2
iii) Lift ,Passage and staircase	=	4.00	KN/m2
iii) Terrace	=	1.50	KN/m2

Seismic Loads:

The Seismic loads on the structure are calculated as per IS: 1893 – 2016. The zone factor considered as indicated below.

Seismic Zone - III

Soil type and Depth of foundation has been taken as per soil investigation report.

Load Combinations:

The load combinations are giving for the most critical conditions on foundations, structures or individual members shall be taken into account.

The load combination indicated in IS:875 (Part 5)-1987& IS: 1893 – 2016 is adopted for the design of civil / structural members. The load combination with corresponding load factor is indicated below.

a) 1.0[DL+LL]

b) 1.0DL+0.8[LL+EQX+]

c) 1.0DL+0.8[LL+EQX-]

d) 1.0DL+0.8[LL+EQZ+]

e) 1.0DL+0.8[LL+EQZ-]

f) 1.0[DL+EQX+]

g) 1.0[DL+EQX-]

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

h) 1.0[DL+EQZ+]

i) 1.0[DL+EQZ-]

j) 1.5[DL+LL]

k) 1.2[DL+LL+EQX+]

l) 1.2[DL+LL+EQX-]

m)1.2[DL+LL+EQZ+]

n) 1.2[DL+LL+EQZ-]

o) 1.5[DL+EQX+]

p) 1.5[DL+EQX-]

q) 1.5[DL+EQZ+]

r) 1.5[DL+EQZ-]

s) 0.9DL+1.5EQX+]

t) 0.9DL+1.5EQX-]

u) 0.9DL+1.5EQZ+]

v) 0.9DL+1.5EQZ-]

Where,

DL - Dead Load
LL - Live load
EQL - Earthquake Load

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
M'STE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

8.0 METHOD OF DESIGN:

Equivalent Static analysis is carried out using Staad Pro v8i Software and load combinations giving the most critical conditions are considered for the design of foundations.

Sub structure is designed for critical load combination by manual calculation.

Reinforced cement concrete - Design as per IS: 456 – 2000 using Staad Pro v8i Software.

Ductile detailing is considered as per 13920 -2016.

9.0 SOIL INFORMATION:

Safe Bearing Capacity of soil – 370.6kN/m^2 at a depth of 3.3m below NGL is considered as per soil report.

10.0 DESIGN:

10.1 FOUNDATIONS:

Foundation is designed to carry all the loads from super-structure.

10.2 RCC COLUMNS:

RCC columns are designed using the STAAD pro analysis software for critical load conditions and are tabulated in the provided drawing.

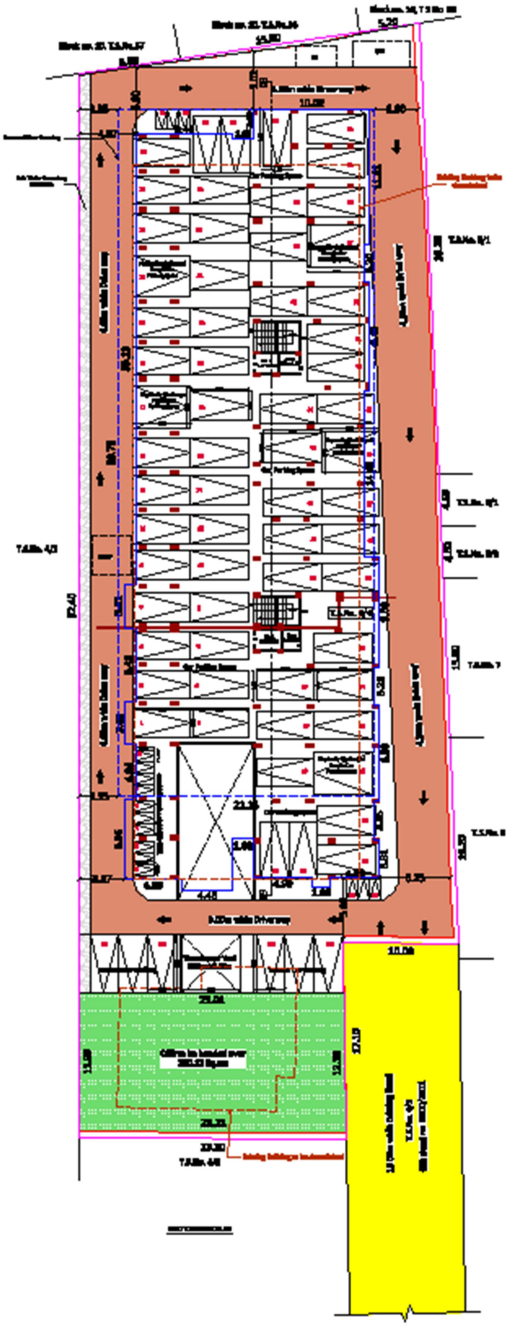
10.2 ROOF SLABS AND BEAMS:

All beams are designed using STAAD pro analysis software for critical load conditions. Slab design is carried out manually.

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
M'STE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

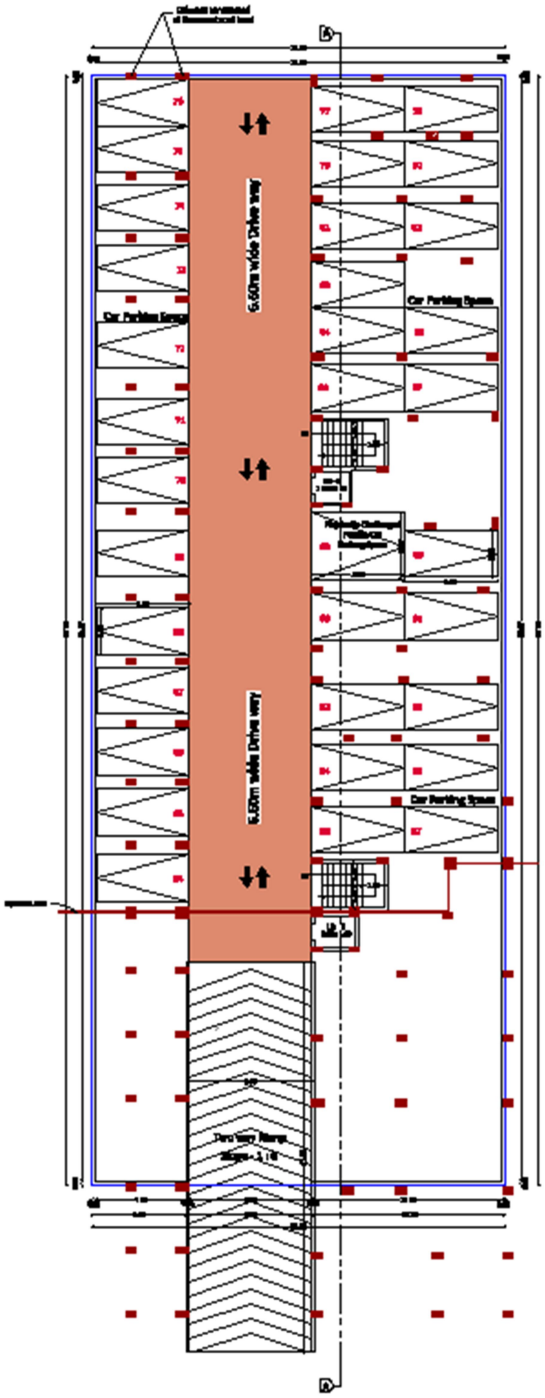
11.0 FLOOR PLANS:

STILT FLOOR PLAN



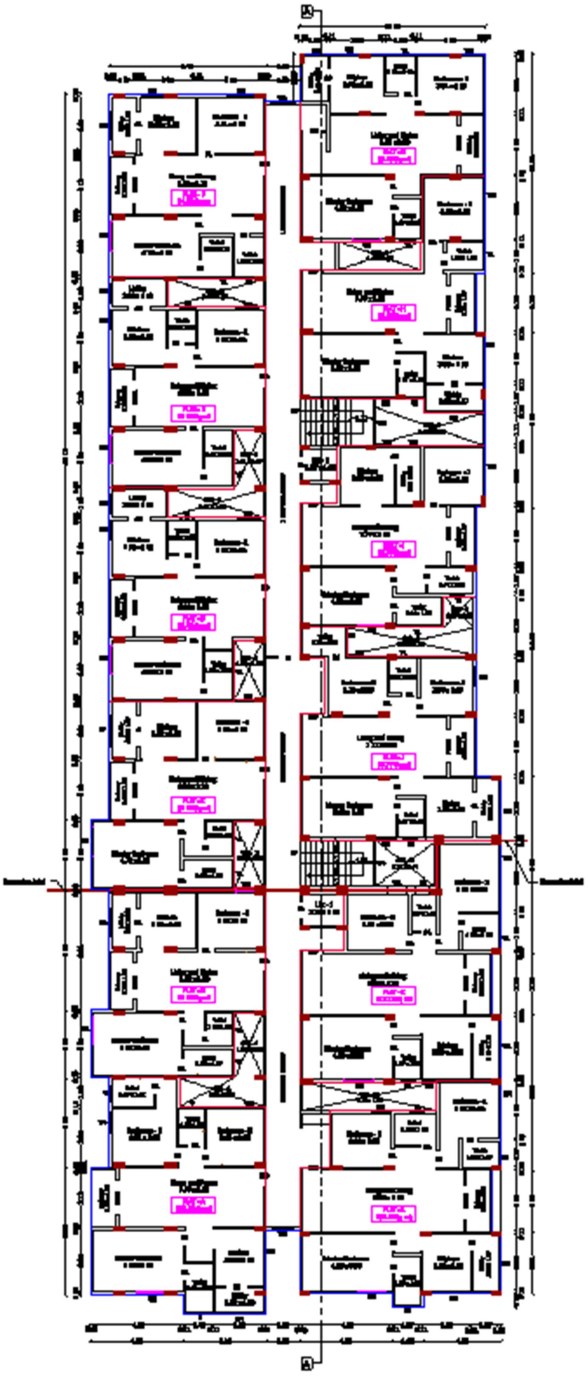
Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

BASEMENT FLOOR



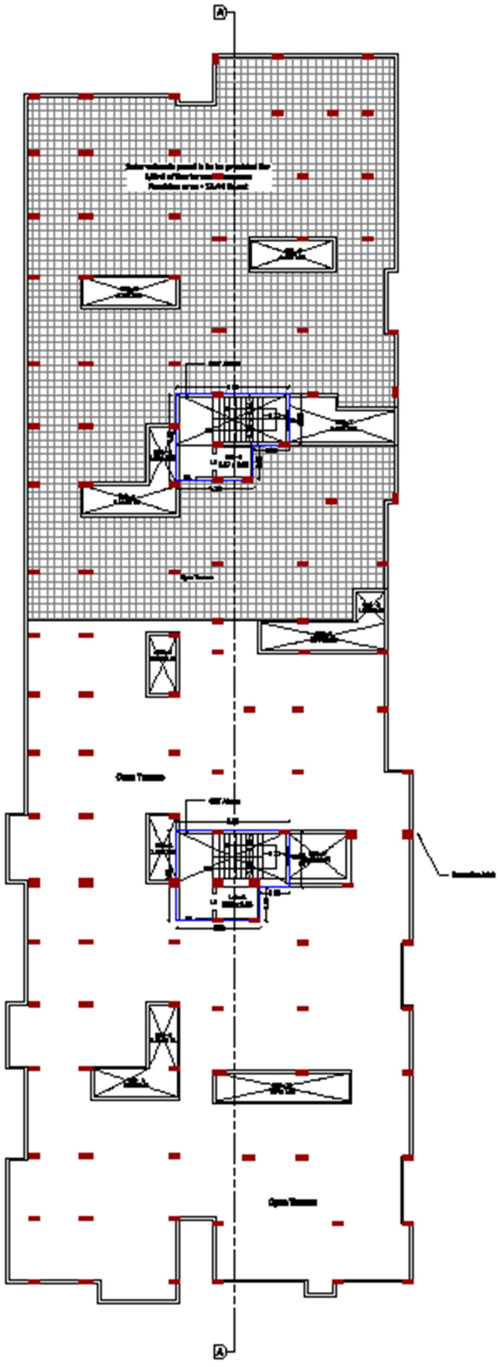
Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

TYPICAL FLOOR PLAN



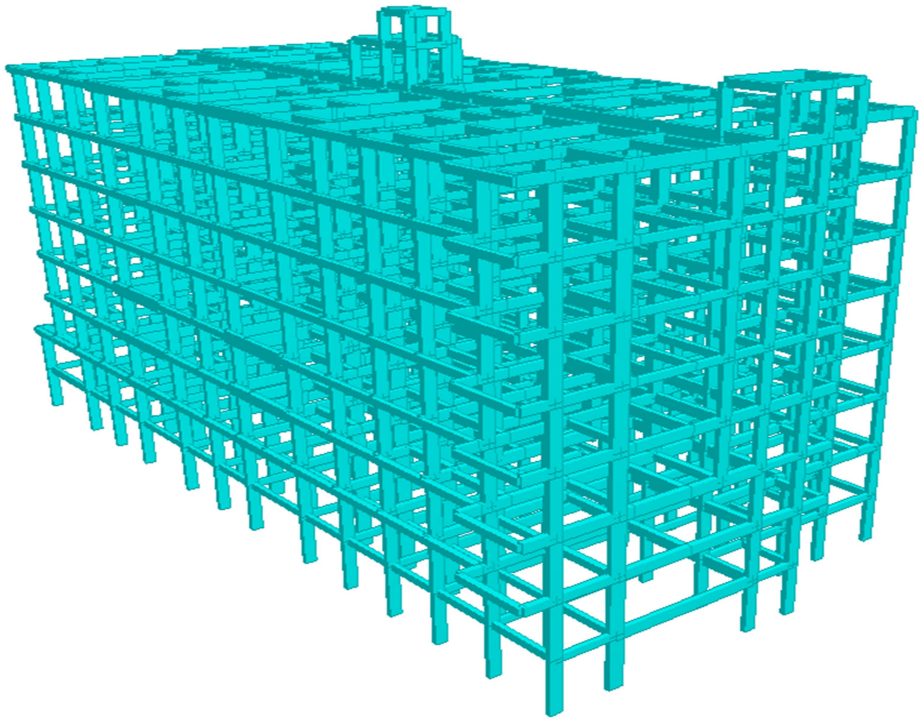
Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

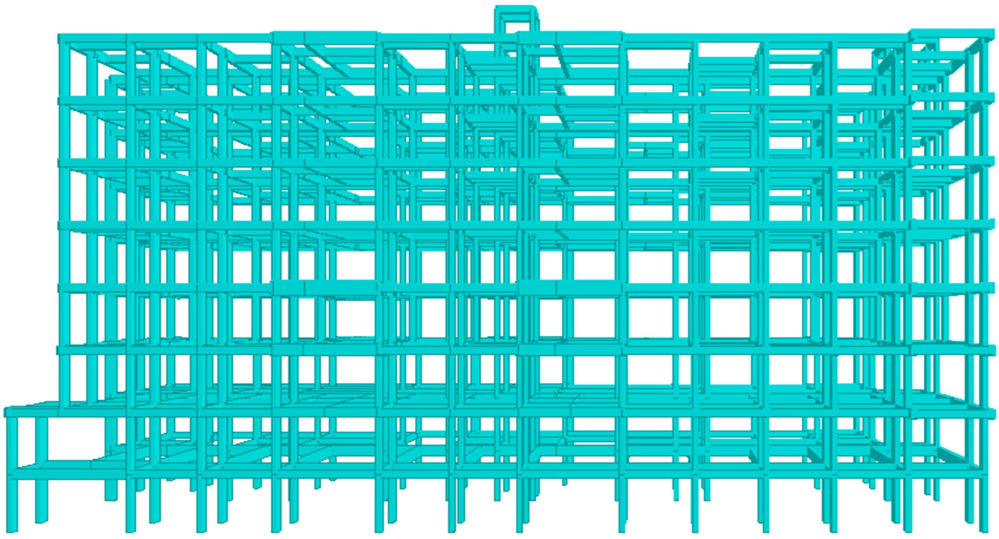
TERRACE FLOOR PLAN



Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

12.0 STAAD IMAGE:





Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

13.0 DESIGN CALCULATION:

FOOTING DESIGN

GENERAL DATA **Node No:1133**

Design Method	=	Limit-State of IS:456-2000				
Unfactored axial load (without selfwt)	=	1050	kN			
Unfactored moment about X (Anticlock +ve)	=	-65	kN.m			
Unfactored moment about Z (Antidock +ve)	=	162	kN.m			
Net Safe bearing capacity of soil @ 2.3 m below Finished grade lvl	=	370.6	kN/m²			
Concrete mix	=	M 25				
Density of concrete	=	25	kN/m³			
Density of soil	=	18	kN/m³			
Factor of Safety	=	1.50				
Provide size of footing	=	2.44	x	2.13	x	0.68 m
Size of Column	=	0.53	x	0.5	m	
Depth of footing below ground level	=	3.3	m			
Clear cover to steel	=	75	mm			

VERTICAL LOAD:
Weight of entire foundation

(2.44*2.13*0.68*25)

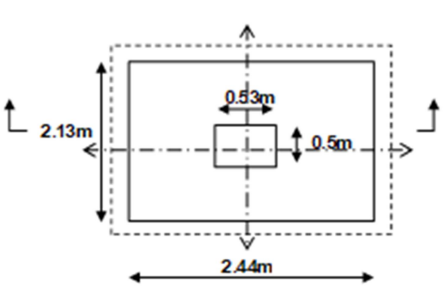
= 88.35 kN

Weight of soil

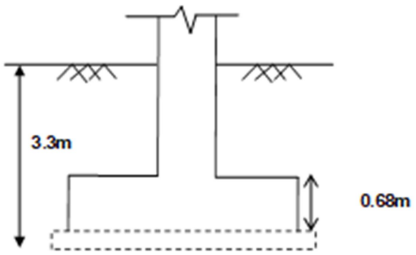
(2.44*2.13*2.62*18)

= 245.10 kN

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038



PLAN



SECTION

DESIGN CALCULATION

CHECK FOR BEARING PRESSURE:

Total Vertical Load

a) Weight of foundation	=	88.35	kN	
b) Weight of soil	=	245.1	kN	
c) Vertical load from structures	=	1050	kN	
TOTAL DOWNWARD LOAD	=	88.35+245.1+1050		
	=	**1383.5**	**kN**	
Section Modulus about XX (Zxx)	=	2.44*2.13^2/6		
	=	1.845		Cum
Section Modulus about YY (Zyy)	=	2.13*2.44^2/6		
	=	2.114		Cum
Actual base pressure	=	(1383.45/2.44/2.13)+(ABS(-65)/1.845)+(ABS(162)/2.114)		
qmax	=	378.05	kN/m²	
qmin	=	154.329	kN/m²	**Hence Safe**

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

Max Net Pressure, qmax-γH = 378.05-3.3*18

= **318.65 kN/m²**

< **370.6 kN/m²**

Hence Safe

DESIGN OF FOOTING SLAB:

Maximum base pressure = 378.05 kN/m²

Maximum overhang of pad = (2.44-0.53)/2 =

= 0.96 m

Pressure due to over burden of soil & pad = (3.3-0.68)*18+0.68*25

= 64.16 kN/m²

Base pressure at face of the pedestal = = (154.329081161888+((378.05-154.329081161888)/2.44*(2.44-

= 290.03 kN/m²

Maximum cantilever moment at the face of pedestal = 0.5*(378.05+290.03)*0.96*(0.96/3*(290.03+2*378.05)/(290.03+378.05))-64.16*0.96*(0.96/2)

= 131.120 kNm

Overall depth provided 680 mm

Diameter of reinforcement bar = 12 mm

Effective depth provided = 680-75-12/2

= 599 mm

Mu/bd² = 1.5*131.12*1000000/(1000*599^2)

= 0.54816

Percentage of reinforcement required (Pt) = 0.131

(As per Table 2 of SP16)

A_{st} required = 0.131/100*(1000*599)

= 784.69 mm²

Minimum reinforcement = 0.12/100*(1000*599) = 718.8 mm²

Provide 12 @ 125 c/c m both ways at bottom.

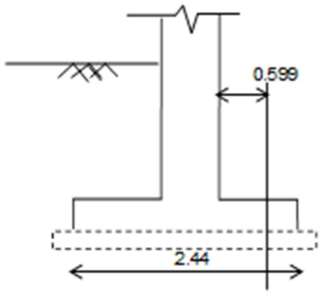
(A_{st} provided = 905 mm²)

Pt provided = 100*905/(1000*599)= 0.152 mm² **Hence Safe**

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

CHECK FOR SHEAR

One Way Shear



Overhang of footing beyond critical section for shear	=	(2.44-0.53)/2-0.599 0.356 m
Maximum base pressure	=	378.05 KN/m²
Depth at Critical Section	=	0.599 m
Base pressure at a distance "d" from face of the pedestal =	=	(154.329081161888+((378.05-154.329081161888)/2.44*(2.44- 323.13 KN/m²
Downward force from footing	=	64.16 KN/m²
Shear force at critical section V	=	0.5*(378.05+323.13)*0.356-64.16*0.356 101.969 kN/m
Shear stress τ_v	=	1.5*101.969*1000/(1000*1000*0.599) 0.25535 N/mm²
τ_c (Table 19 of IS 456-2000)	=	0.293 N/mm² Hence Safe

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

Two Way Shear

Perimeter of the critical section around the pedetal at a distance d/2 from face of pedestal	=	((0.53+2*(599/2/1000))*2)+((0.5+2*(599/2/1000))*2)
	=	4.456 m
Depth at Critical Section	=	0.599 m
Allowable punching shear stress		
$\tau_c' = k_s \cdot \tau_c$		
$k_s = 0.5 + \beta_c$		
β_c = 0.53/0.5 = 1.06		
ks	=	0.5 + 1
	=	1.6
ks should not be greater than 1	=	1
$\tau_c = 0.25 \sqrt{f_{ck}}$	=	0.25 x √ 25
	=	**1.25 N/mm²**
Allowable maximum load (unfactored) on pedestal from punching shear point of view	=	1.25*(4.456*1000)*0.599/1.5
	=	2224.287 kN
Total Downward load	=	1050 kN

Hence Safe

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
M'STE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

COLUMN DESIGN

1.(Column upto stilt floor roof top) – (NODE-1133)

```
================================================================================
            IS-456    L I M I T    S T A T E    D E S I G N
         C O L U M N   N O.   1787  D E S I G N   R E S U L T S

      M20                   Fe500 (Main)              Fe500 (Sec.)

LENGTH:  3000.0 mm   CROSS SECTION:  230.0 mm X  530.0 mm  COVER: 40.0 mm

** GUIDING LOAD CASE:    3  SHORT(Z)        /BRACED LONG(Y)

  DXF IMPORT OF DRAWING1                                  -- PAGE NO. 4652


REQD. STEEL AREA   :      389.40 Sq.mm.
REQD. CONCRETE AREA:    48674.80 Sq.mm.
MAIN REINFORCEMENT : Provide   8 - 12 dia. (0.74%,    904.78 Sq.mm.)
                     (Equally distributed)
TIE REINFORCEMENT  : Provide  8 mm dia. rectangular ties @ 190 mm c/c

SECTION CAPACITY BASED ON REINFORCEMENT REQUIRED (KNS-MET)
-----------------------------------------------------------
Puz :   1239.62   Muz1 :     93.04   Muy1 :     36.69

INTERACTION RATIO: 0.49 (as per Cl. 39.6, IS456:2000)

SECTION CAPACITY BASED ON REINFORCEMENT PROVIDED (KNS-MET)
-----------------------------------------------------------
WORST LOAD CASE:     1
Puz :   1428.25   Muz :    127.57   Muy :     46.01   IR: 0.34
================================================================================
```


Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

BEAM-1

```
==========================================================================
              IS-456   L I M I T   S T A T E   D E S I G N
             B E A M  N O.   1899   D E S I G N  R E S U L T S

      M20                  Fe500 (Main)             Fe500 (Sec.)

    LENGTH:  3289.3 mm      SIZE:   230.0 mm X  380.0 mm   COVER: 30.0 mm


                    SUMMARY OF REINF. AREA (Sq.mm)
--------------------------------------------------------------------------
SECTION      0.0 mm      822.3 mm     1644.7 mm     2467.0 mm     3289.3 mm
--------------------------------------------------------------------------
 TOP         134.90        134.90          0.00          0.00          0.00
REINF.      (Sq. mm)      (Sq. mm)      (Sq. mm)      (Sq. mm)      (Sq. mm)

BOTTOM         0.00          0.00        134.90        134.90        134.90
REINF.      (Sq. mm)      (Sq. mm)      (Sq. mm)      (Sq. mm)      (Sq. mm)
--------------------------------------------------------------------------

  DXF IMPORT OF DRAWING1                                -- PAGE NO. 2484


                  SUMMARY OF PROVIDED REINF. AREA
--------------------------------------------------------------------------
SECTION      0.0 mm      822.3 mm     1644.7 mm     2467.0 mm     3289.3 mm
--------------------------------------------------------------------------
 TOP       3-10d         3-10d         2-10d         2-10d         2-10d
REINF.   1 layer(s)    1 layer(s)    1 layer(s)    1 layer(s)    1 layer(s)

BOTTOM     2-10d         2-10d         3-10d         3-10d         3-10d
REINF.   1 layer(s)    1 layer(s)    1 layer(s)    1 layer(s)    1 layer(s)

SHEAR   2 legged  8d  2 legged  8d  2 legged  8d  2 legged  8d  2 legged  8d
REINF.  @ 125 mm c/c  @ 125 mm c/c  @ 125 mm c/c  @ 125 mm c/c  @ 125 mm c/c
--------------------------------------------------------------------------


SHEAR DESIGN RESULTS AT DISTANCE d (EFFECTIVE DEPTH) FROM FACE OF THE SUPPORT
--------------------------------------------------------------------------

SHEAR DESIGN RESULTS AT   460.0 mm AWAY FROM START SUPPORT
  VY =     9.30 MX =    -0.12 LD=    4
  Provide 2 Legged  8d  @ 125 mm c/c

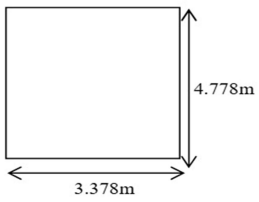
SHEAR DESIGN RESULTS AT   460.0 mm AWAY FROM END SUPPORT
  VY =     4.40 MX =    -0.12 LD=    4
  Provide 2 Legged  8d  @ 125 mm c/c
```


Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

SLAB DESIGN:

GENERAL DATA

Shorter dimension of slab, l_x		3.38	m
Longer dimension of slab, l_y		4.78	m
	l_y/l_x	1.41	**Twoway Slab**
Assuming thickness of slab		125	mm
Consider width		1000	mm
	f_{ck}	25	kN/m^2
	f_y	500	kN/m^2



Type of panel -	Interior panel	
Clear cover to reinforcement	20	mm

Loads

Live load	2	kN/m^2
Dead load	3.125	kN/m^2
Floor Finish	2	kN/m^2
Total load	7.125	kN/m^2
Fact. load	10.69	kN/m^2

Typical design calculation

Mu = Coeff*W_u*l_x*l_x (Coefficient from IS:456)

= 0.051*10.69*3.378*3.378

= 6.23 kN-m

Mu /bd^2 = (6.23*10^6)/(1000*100^2)

0.623 N/mm^2

P_t = 0.204 (From SP-16, Table-3)

Ast = (0.204*1000*100)/100

= 204 mm^2

Spacing = (3.14*10*10/4/204)*1000

384.81 mm

Short span direction	Coeff	Mu (kNm)	Mu /bd^2	P_t	Ast	Dia	Spacing
Negative moment @ continuous edge	0.051	6.22	0.622	0.154	154	10	509.75
Positive moment @ midspan	0.039	4.76	0.48	0.118	118	10	665.26

Long span direction	Coeff	Mu (kNm)	Mu /bd^2	P_t	Ast	Dia	Max. Spacing
Negative moment @ continuous edge	0.032	3.90	0.39	0.118	118	8	425.77
Positive moment @ midspan	0.024	2.93	0.29	0.118	118	8	425.77

Reinforcement provided

Ast provided in short span =	523.33	mm^2	Ast provided in long spa	334.93	mm^2
Spacing provided in short span =	150.00	mm	Spacing provided in lon	150.00	mm
P_t provided in short span =	0.52		P_t provided in long span	0.33	

Hence spacing is safe — Hence spacing is safe

Minimum effective depth required dreqd. = 42.46 mm (SQRT(MAX(Mu/0.138*fck*1000)))*1000

Minimum effective depth provided dprov. = (125-20-10/2)

100 mm

Minimum reinforcement Ast min = (0.12*1000*100/100)

= 120 mm^2

Depth provided is greater than minimum effective depth required

Hence safe

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

Check for shear

Maximum shear force @ support — $Vu = Wl_x/2$
$= (10.69*3.378)/2$
$= 18.06$ kN

Actual shear force — $\zeta v = Vu / bd$
$= (18.06*1000)/(1000*100)$
$= 0.18$ N/mm^2

% of tension rft. provided in support pt = 0.52

IS:456-2000 Table-19
Allowable shear stress — $\zeta c = 0.5$

As per IS:456,cl:40.2.1.1 k value for slab = 1.3

Design shear stress for concrete — $k \times \zeta c = 0.65$

Actual shear stress < Design shear stress
Hence safe

Check for deflection

Type of slab — Simply suppoerted
Allowable span / depth ratio = l/d = 20 [As per IS:456-2000, Cl:23.2.1(a)]

Percentage of tension reinforcement = 0.52
Steel stress of service loads — fs= 0.58fy(Area of steel required/Area of steel provided)
65.39 N/mm^2
Corresponding comp. rft.
Percentage of comp. reinforcement = 0.33

Modification factor for tension rft. F1= 2.00 (From fig:4 ,IS:456-2000)
Modification factor for comp. rft. F2= 1.110 (From fig:5 ,IS:456-2000)
Modified span/depth ratio = l/d x F1x F2
44.4
Actual span/ depth ratio = 33.78

Actual span/ depth ratio < Modified span / depth ratio
Hence safe

At Short span direction

Provided T10@ 150mm c/c

At Longer span direction

Provided T8@ 150mm c/c

Dr.G.S.VENKATASUBRAMANI,
Ph.D.,ME(Struct).,FIE,C.Engg (I),PE.,
MISTE.,MI Struct E.,MICI.,FIV
Consulting Structural Engineer,Professional Engineer,
Chatered Civil Engineer & Approved Valuer
53, M.A. Palaniswamy Street
K.K. Pudur, Coimbatore - 641 038

THE LANDLENS SUITE

Eight ways to know a piece of land before you pay for it.

This report covers one part of the picture. These cover the rest, drawn from the same government records, for any property in Tamil Nadu.

LandLens One
Ask anything about a property and get an answer grounded in live government records, with the sources shown.
/landlens/one

Verify My Land
Every record check run on one property and returned as a single report.
/landlens/verify-my-land

Legal Opinion
An advocate's written opinion on the title, built on the records we pull for it.
/landlens

One Map
Every layer on one map: the parcel, its boundary, zoning, water bodies and what sits around it.
/landlens/one/map

PriceMap
What land actually changed hands for around this plot, taken from the registered deeds.
/landlens/pricemap

Build Scope
What you are allowed to build here: floor space, height, coverage and setbacks.
/landlens/build-scope

Property Tracker
Watch a property and hear about it when something new is registered against it.
/landlens/property-tracker

Deal Room
Run the transaction in one place: documents, stamping, signatures and the parties.
/landlens/deal-room

FREE TOOLS · NO ACCOUNT NEEDED

Twenty-four checks you can run yourself, at no cost.

Records and verification

The registers themselves, read for you.

- Encumbrance Certificate
- Patta and Chitta
- Field Measurement Sketch
- EC Analyzer
- Bank charge check
- Court case search
- Seller background check
- Approval check by survey

Value and duty

What it is worth and what it costs to register.

- Guideline value by street
- Guideline value by survey
- Stamp duty and registration fees
- Capital gains
- Floor space index
- Area unit converter

Zoning and land use

What the plan says can happen on this land.

- Land use zone finder
- CMDA land use check
- Coastal regulation zone
- Master plan check
- Water bodies finder
- Airport height clearance

Registers and directories

Who holds it, and which office keeps the record.

- Find your registering office
- Temple property check
- Waqf property check
- RERA register

Every free tool
/tools

Services we run for you
/services

The LandLens suite
/landlens/one

Verified RealEstate™

Every claim in this document traces back to a government record.

- Legal opinions, due diligence and title verification
- Building plan, layout and sub-division approvals
- Completion and occupancy certificates, regularisation
- Escrow, negotiation and NRI property management
- Land survey, soil testing, architecture and construction

Verified RealEstate
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India
hello@verified.realestate
+91 9996 12 9996

Prepared from the registers named on the page each finding sits on. Where a register could not be read, this document says so in its place rather than leaving the gap to be read as a clean result.