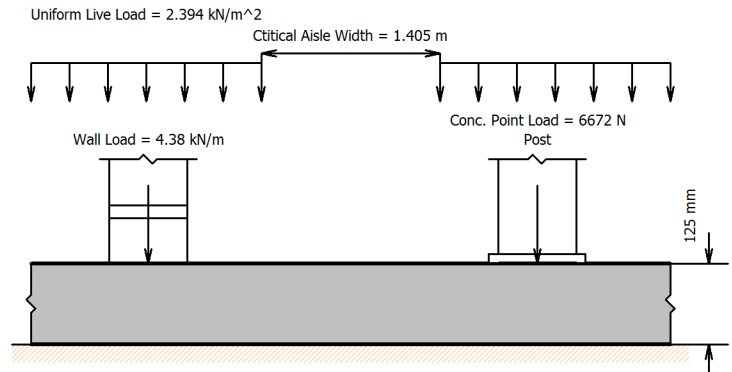


Slab on Grade Analysis

Organization:
 Project Name: **EXAMPLE 1 SI UNITS**
 Job #:
 Design by:
 Date: **6/20/2019**

Slab Geometry

Slab Thickness, t 125.0 mm
 Min. Thickness, t(min) 114.3 mm
 Concrete Str, f'c 17.24 MPa
 Vert. Subgrade Modulus 20000 kN/m³
 Modulus of Rupture, MR 3.1030 MPa
 Modulus of Elasticity, Ec 19652.17 MPa
 Poisson's Ratio 0.15
 Radius of Stiffness, Lr 636.0 mm



Point Load

			Actual, MPa	Allow, MPa
Point Load Type	Post	Flexural Stress, Fb	0.5079	1.5515
Conc. Unit Weight, wc	23 kN/m ³	Bearing Stress, Fp	0.1034	13.0325
Reinforcing Yield, fy	275.80 MPa	Punching Shear Stress, Fv	0.0352	0.8378
Concentrated Point Load, P	6672.00 N	Load Transf. Dowels @ Joint, Fd	6.5626	18.6767
Contact Area, Ac	64516.0 mm ²			
Factor of Safety, FS	2.00	Minimum required slab thickness		mm
Dowel Bar Dia, db	19.05 mm	Single Interior Load		63.5
Dowel Bar Spacing, s	304.80 mm	Single Corner Load		38.1
Const. Joint Width, z	8.382 mm	Single Edge Load (circular area)		95.3
Joint Spacing, L	3.6576 m	Single Edge Load (semi-circular area)		108.0
Temperature Range, deltaT	40.00 deg			
Increase for 2nd Load, i	40.00 deg			

Wall Load

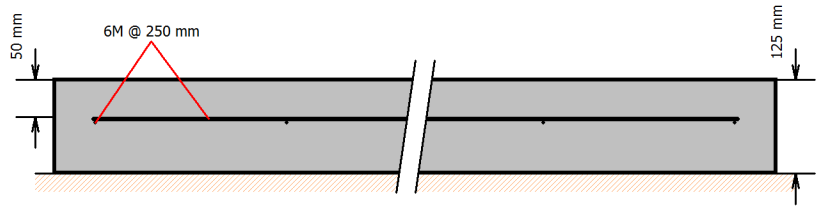
			Allow. Wall Load, kN/m	Min. req. slab thickness, mm
Distributed Wall Load, P	4.38 kN/m	Near Center or Keyed Joints, Pc	6.42	95.3
		Near Free Edge, Pe	4.98	114.3

Uniform Load

			Stat. Unif. Dist. Live Loads, kN/	Min. req. slab thickness, mm
Uniform Live Load, wLL	2.394 kN/m ²	Per Reference #1	31.337	-19.1
Factor of Safety, FS	2.000	Per Reference #2	25.234	-12.7

Reinforcement

Steel Yield Str, F	400.0 MPa
Rebar Sizes	European
Bar Size	6M
Clear Cover	50.0 mm
Bar Spacing	250.0 mm
As Required	1242.05 mm ² /m
As Provided	113.20 mm ² /m



References:

1. "Concrete Floor Slabs on Grade Subjected to Heavy Loads"
Army Technical Manual TM 5-809-12, Air Force Manual AFM 88-3, Chapter 15 (1987)
2. "Slab Thickness Design for Industrial Concrete Floors on Grade" (IS195.01D)
by Robert G. Packard (Portland Cement Association, 1976)
3. "Design of Slabs-on-Ground" - ACI 360R-06 - by American Concrete Institute, 2006
4. "Concrete Floors on Ground"- 2nd Ed., by Portland Cement Association, 1983
5. "Designing Floor Slabs on Grade"-2nd Ed., by Ringo & Anderson, 1992
6. ACI 318-14, American Concrete Institute, 2014
7. 2015 International Building Code, ICC, 2015
8. Slab on Grade Software v1.0.0 by SoilStructure.com