

Access Free 2 Pile  
Pilecap Design  
Example Filesing

# **2 Pile Pilecap Design Example Filesing**

**As recognized,  
adventure as  
well as  
experience not  
quite lesson,  
amusement, as**

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**without difficulty  
as harmony can  
be gotten by just  
checking out a  
books 2 pile  
pilecap design  
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in addition to it  
is not directly  
done, you could  
take even more  
roughly this life,  
going on for the  
world.**

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proper as well as  
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descriptions of  
books that you're  
interested in.**

**Basic Principle  
of Pile Cap  
Design | | The  
Structural World  
This design  
example is for  
end bearing piles  
that are driven**

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**through cohesive soil and tipped out in rock. A resistance factor of 0.70 was used for end bearing in rock based on successful past practice with WEAP analysis and the general direction of Iowa LRFD pile testing and research.**

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**pile cap design -  
mocivilengineeri  
ng.com**

**Example Pile cap  
design. Builder's  
Engineer**

**Designing a Pile  
Cap to Eurocode  
- STRUCTURES  
CENTRE**

**Explanation of  
pile cap design**

*Page 7/39*

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**with example:-**

**EXAMPLE 2 :-**

**Diameter of pile :**

**300 mm Spacing**

**between the**

**piles :  $3xd =$**

**$3 \times 400$  mm [ As**

**per IS 2911 =**

**1200 mm (Part**

**1/Sec 3) : 2010**

**Clause : 6.6.2.]**

**No of piles under**

**a pile cap: 4 Size**

**of column :**

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**400x400 mm**

**Load transferred  
by column : 1600  
kN Load on each  
pile :  $1600/4=$   
400 kN The  
dimension of the  
...**

**Pile Supported  
Foundation (Pile  
Cap) Analysis  
and Design  
A pile cap have**

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**to support a  
18"X18" column  
which is  
subjected to live  
load=170 kips  
and dead  
load=160 kips  
under service  
loading. The  
column is  
reinforced with  
longitudinal bars  
of 12 No. 7 bars.  
Consider  $f_y = 60$**

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**Ksi and  $f' C = 3$   
Ksi. The  
diameter of pile  
is 12". The  
ultimate pile  
capacity=70  
kip/pile and  
service load  
capacity=42  
kip/pile as  
conformed by  
testing.**

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**Pile cap design  
using Strut and  
Tie methodology  
The maximum  
shear stress at  
the face of the  
column shall not  
exceed  $0.85 \sqrt{f_{cu}}$   
or  $5\text{N/mm}^2$ ; If  
the spacing of  
the piles is  
greater than 3  
times the pile  
diameter,**

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**punching shear  
should be  
checked in  
accordance with  
the figure above,  
Critical Section  
for Shear Check  
in Pile Cap. A  
design example  
of a pile cap will  
be published  
soon.**

**Comprehensive**

*Page 13/39*

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**Design Example  
2: Foundations  
for Bulk ...  
Worked Example.  
A 500x 500  
concrete column  
carries an axial  
design action of  
4250 kN. Design  
a 4 pile pile-cap  
to support the  
column. The piles  
are 500mm in  
diameter**

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**cylindrical  
concrete. Design  
the pile cap  
completely using  
C30/37 concrete  
with 500mpa  
high tensile steel  
assuming the  
column to be  
placed in the  
centroid of the  
pile group.**

**Pile Cap Design -**

*Page 15/39*

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**Structural Guide**  
**Design the pile cap shown in the following figure with 12 in. diameter piles and a service load capacity of 50 tons each. The pile cap has normal-weight concrete with a compressive strength of 4000**

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**psi and Grade 60  
reinforcement.  
And the piles are  
embedded 4 in.  
into the pile cap.  
The axial loads  
on the column  
are due to dead  
and live loads  
and**

**Design of pile  
cap - CE-  
REF.COM**

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## **Example 1:**

**Design of one-way slab. By**

**Mohammad -**

**May 28, 2019 ...**

**The pile cap is thick concrete mat rests on piles. It is part of the foundation and used to distribute the loads over the piles. Piles used**

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**when the soil bearing is not enough to carry loads of the structure.**

**Design of pile cap - SlideShare**  
**A very simple example for the strut-and-tie design of a two-pile cap is shown below. Extract**

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**from Strut and  
Tie Models ,  
page 3. A For  
clarity, the self-  
weight of the  
pile cap assumed  
to be included.**

**(PDF) Example  
Pile cap design.  
Builder's  
Engineer | Noy ...  
Pile Cap Design -  
Truss Method**

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**Design Input - 4  
Piles - With  
Eccentricity  
Number of piles;  
 $N = 4$  ULS axial  
load;  $F_{uls} =$   
**1850.0 kN Pile  
diameter;  $\phi =$   
350 mm Pile  
spacing, both  
directions;  $s =$   
900 mm  
Eccentricity from  
centroid of pile****

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**cap;  $e_x = 75$  mm  
Eccentricity from  
centroid of pile  
cap;  $e_y = 50$  mm  
 $b$   $P_1$   $P_2$   $s$   $L$   $e$   
 $\phi\phi\phi\phi$  Loaded  
width ...**

**Reinforcement  
Design of a Pile  
Cap  
Using the beam  
theory makes  
our life easier**

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**because we can use the usual conditions and design practice for pile cap design as we are using for a simple concrete beam. But what can we do, if the circumstances require a higher pile cap and thus the span-to-**

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**depth ratio is less than 2 which is the limit of the beam theory.**

**Pile Cap Design  
Examples  
[qvndggoy19nx]  
Grade of  
Concrete = M 30  
Grade of Steel =  
Fe 500 Size of  
column = 680 x  
300 mm Axial**

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**Force = 1560 KN**

**Moment  $M_x$  =**

**339 Kn-m**

**Moment  $M_z$  = 0.6**

**Kn-m Capacity of**

**Dia 600  $\Phi$  Pile =**

**900 KN as per**

**soil testing**

**report. No of**

**piles = 1560 /**

**900 No of piles =**

**2.**

**RC PILE CAP**

*Page 25/39*

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**DESIGN (BS8110:  
PART1:1997)**

**Chapter 5 Single  
Pile Design 5.1**

**End bearing piles**

**5.2 Friction piles**

**5.3 Cohesion**

**piles 5.4 Steel**

**piles 5.5**

**Concrete piles**

**5.5.1 Pre-cast**

**concrete piles**

**5.6 Timber piles**

**(wood piles)**

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**5.6.1 Simplified  
method of  
predicting the  
bearing capacity  
of timber piles  
Chapter 6 Design  
of Pile Group 6.1  
Bearing capacity  
of pile groups**

**Pile Foundation  
Design[1]  
Anchor Bolt  
Design per ACI**

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**318-11 Crane  
Beam Design ww  
w.civilbay.com  
2-Pile Pilecap  
Design Example  
CivilBay Anchor  
Bolt Design per  
ACI 318-11 Crane  
Beam Design ww  
w.civilbay.com  
Anchor Bolt  
Design ACI  
318-11 Crane  
Beam Design ww**

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[w.civilbay.com](http://w.civilbay.com)

**Calculation Sheet  
Project : Anchor  
Bolt Design ACI  
318-11 Crane  
Beam Design Eng  
: Test**

**Strut and tie -  
Concrete Centre  
2 Strut-and-Tie  
Approach for Pile  
Cap Design In  
the EC2 it is**

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**stated that for  
the design of  
discontinuity  
regions strut-and-  
tie models  
should be used  
(NEN-EN  
1992-1-1,  
6.1(1)). In this  
example the  
reinforcement of  
a pile cap is  
determined**

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**2 Pile Pilecap  
Design Example  
Worked Example:  
Design of Pile  
Cap. Consider  
the design of a  
pile cap  
supporting two  
pile and a single  
column on the  
pile cap. Data.  
Pile Diameter  
600mm; Design**

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**Load 3000 kN;  
Cover to the  
reinforcement  
50mm; Grade of  
concrete 30;  
Characteristic  
strength of steel  
as 500 N/mm<sup>2</sup>;  
Size of the  
column on the  
pile cap  
500x500mm;  
Calculate the ...**

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**Design Example  
of Pile Cap for  
Concentric  
Loading - Civil ...**  
**The column or  
wall on pile cap  
should be  
centered at the  
geometric center  
of the pile cap in  
order to  
transferred load  
evenly to each  
pile. Example of**

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**pile layout  
pattern are  
shown below:  
Pile spacing,  
edge distance,  
and pile cap  
thickness: In  
general, piles  
should be  
spacing at 3  
times of pile  
diameter in order  
to transfer load  
effectively to ...**

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## **LRFD Pile Design Examples**

**1- Pile cap is perfectly rigid. 2- Pile heads are hinged to the pile cap and hence no bending moment is transmitted to piles from pile caps. 3- Since the piles are**

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**short and elastic columns, the deformations and stress distribution are planers. Design Parameters Of Pile Caps: 1- Shape of the pile cap. 2- Depth of pile cap. 3- Amount of steel to ...**

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**(PDF) DESIGN OF  
PILE & PILE CAP  
DESIGN OF PILE  
CAP - C1 ...**

**The required  
ultimate  
compression  
capacity per  
column is  $417.5 \times$   
 $2 = 835$  ton. The  
required  
ultimate shear  
capacity per  
column is  $9.3 \times$**

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**1.5 = 14 ton. The required ultimate uplift capacity per column is  $13.5 \times 2 = 27$  ton. In this example, the limiting factor for helical pile design is the compression and shear load requirements.**

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