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CEMENT OF THE CONNECTORS BUILDING AND IN BUILDINGS APPLICATION SECTORS ANALYSIS

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Abstract
This in the article cement gardeners building and in buildings to be used related main directions, building and buildings under construction basis and foundations task, them calculation for elementary information and from them targeted use opportunities about word goes.

Keywords: Cement Stiffener, Foundation, Column and supports, plates and wall Panels, Brick and blocks, Car roads, bridge and tunnels.

Introduction

Cement gardeners building and in buildings main construction from materials one They are strength, endurance and far term service to do such as features with separated Below cement gardeners building and in buildings to be used related main directions quoted:

1. Main loader constructions

Cement gardeners concrete and reinforced concrete constructions in preparation main structural part is considered. Including :
Foundation – the foundation of a building stability provide for .
Column and supports – the structure vertical and horizontal their luggage lift, accept to do, equal distribution and in transmission for.
Plates and wall panels – building internal and external the walls in construction .

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2. Construction mixtures

Cement based on mixtures following affairs for used:

Work and blocks bonding – cement-sand mixture walls and obstacles reinforcement for is used.

Water insulation – special waterproofing mixtures humidity to the effect against is used.

Decoration works – puttying and plaster for cement based on mixtures is used .

3. Roads and infrastructure construction

Car roads – cement based on concrete road coatings far service deadline and endurance with separated stands.

Bridge and tunnels – heavy loads lifting constructions for as a strong material is used .

Hydraulic engineer structures – water reservoirs, dams and channels under construction special to the water resistant cement of the types is used.

4. Industry and special buildings

Heat and chemical durable structures – special kind of cement (e.g. sulfate-resistant) cement (chemical) and heat to the effect resistant materials create for is used .

Port and sea structures – sea water to the effect endure give able to special hydraulic engineer cement is used .

Cement gardeners application their composition and to the characteristics related is, each construction type suitable accordingly These materials are selected. modern construction inseparable part is considered .

Foundation - building and of the structure dependent part of it . type targeted right selection and installation far time during building and of the structure strength provides . Construction in planning foundation and foundations correct, clear to be counted engineering research, hydrological and geological conditions based on done The soil features and in calculation into account not received loads on the foundation, on the walls cracks appearance to be and their to the violation take is coming.

Building and buildings under construction basis and foundations task . They calculation for start information:

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Foundations task the load from supports foundation through to the ground equal distributed without is a transfer . Therefore for in calculations engineering to research additional accordingly hydrogeological conditions into account is taken:

•of soils strength and deformation ability indicating mechanic and physicist properties . These include friction angle , viscosity , deformation modulus and at subzero temperatures pull power This sizes soil indicators is considered ;

•land under waters level , its seasonal vibrations , soil characteristics change with water pressing probability ;

•The depth of soil freezing is taken as the average value of the greatest freezing depths based on long-term observations. If they are not available, the freezing depth is calculated using thermal engineering calculations, taking into account the thermal protection of the foundation of the house.

Foundations and their Basics of lifting ability and deformations 2 types according to border to the circumstances is considered . Both calculation also to SNiP according to , the loads general combination into account takes.

Deformation calculations of the foundation sinking and bending because of to move road not to put for done This is calculation building and inchoots by to the foundation transferable forces own inside takes .

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Lifting ability in determining the following into account is taken :

- under construction building and of the structure weight or reconstruction during his/her increase;
- big horizontal effects (load - bearing support walls, floor full, seismic vibrations);
- slope construction playground or his/her next to ;
- basically rocky soil availability ;

Foundation load -bearing capacity ability his/her stability and strength provide for calculating is issued , this of the foundation to shift or to sink road does not let .

- Lifting ability and deformations calculation results based on his/her how in case construction about decision acceptance is done :
- of the basis type ;

of the foundation type and his/her external appearance (striped, columnar, pile) and plate forms);

- construction material (reinforced concrete, concrete, brick);

placement depth . Its values to the following influence does:

1. construction to their dimensions;
2. close in the distance located buildings of supports type and depth ;
3. engineering networks to the depth ;
4. of the place to the relief;
5. construction of the playground engineering and hydrogeological to the information;
6. freezing to the depth .

Personal houses Types of foundations for

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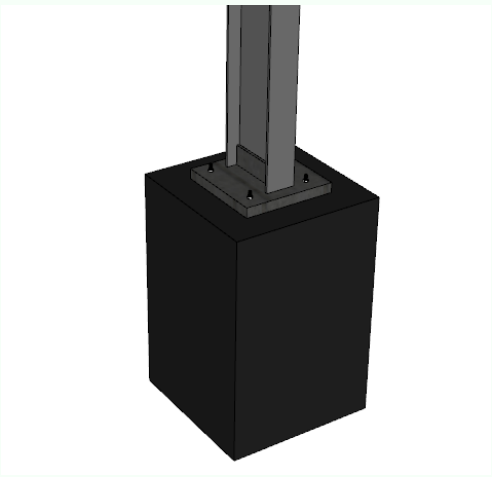
Support , tape and plate shaped foundations
Engineering and hydrogeological information based on calculation from work then , basis and foundation how in case construction about decision acceptance Low - rise buildings for often plate , columnar , linear types Each of them design construction method and lifting ability with differs .

Columnar foundations

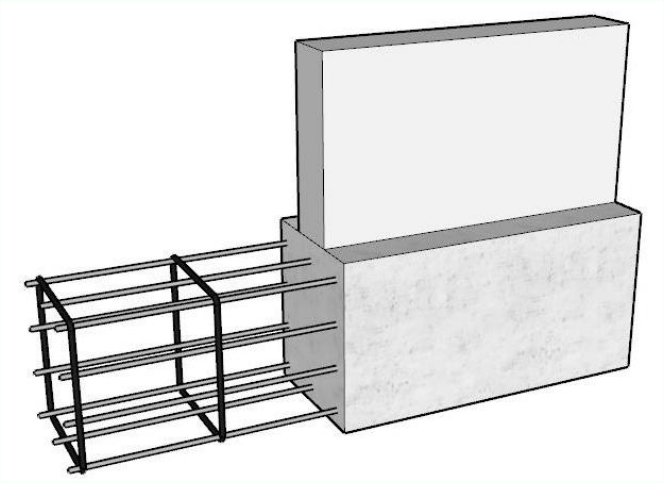


This is one multi-storey buildings for wide widespread , popular They are considered deep freezing to the depth has was lifter to the soil installation recommendation Columnar of supports disadvantages of the soil horizontal deformation harvest they will be unstable , steady it's not and bending possible , therefore for they hard constructive mixture with one to the system is installed ;
In large-scale construction, additional measures are required when installing column supports on loose soils:

- soils are strengthened ;
- The soil under the column is replaced with a gravel bed or sand cushion ;

The columns are connected using tie beams to distribute the loads evenly.
Right side of the column The average cross-section size is 400-600 mm.

Strip foundations



It is installed in the following cases :

- wall and interval walls for when using heavy building material with a density of 1300-2000 kg/m3;
- when the floor of the house is cantilevered and filled with earth ;
-
- the soil structure is unstable, sinking , and prone to deformation when wet.

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A strip foundation structure is a trench filled with reinforced solid building material and located under the outer and inner main walls . Digging a trench involves a large amount of earthwork. Depending on what building material the strip foundation structure is filled with, the foundations are divided into types:

monolithic reinforced concrete - consists of a reinforcing metal frame and concrete. This type is used more often than others, it is very durable, evenly distributes loads and combines well with many types of soil;

prefabricated reinforced concrete slabs manufactured in factory conditions - are as strong as monolithic reinforced concrete, but their installation technology is labor-intensive and requires installation using special equipment. The slabs are manufactured according to the State Standard _____, which indicates their brand, dimensions, concrete and steel composition and weight.

Slabs are divided into four types according to their load-bearing capacity, depending on the amount of allowable pressure exerted on the foundation. This pressure is calculated as the unit load of the construction weight, measured in MPa (kgf/cm2), divided by the width of the slab;

- type of butobeton, for one-story houses, cottages, small buildings, can be installed on all types of soils. The construction technology is labor-intensive, as it requires laying large-fraction butobetons on cement mortar along the entire length of the strip.

Natural rubble stone conducts low temperatures well and is resistant to rising groundwater levels. Therefore, such a foundation for a house freezes quickly and requires the installation of thermal insulation.

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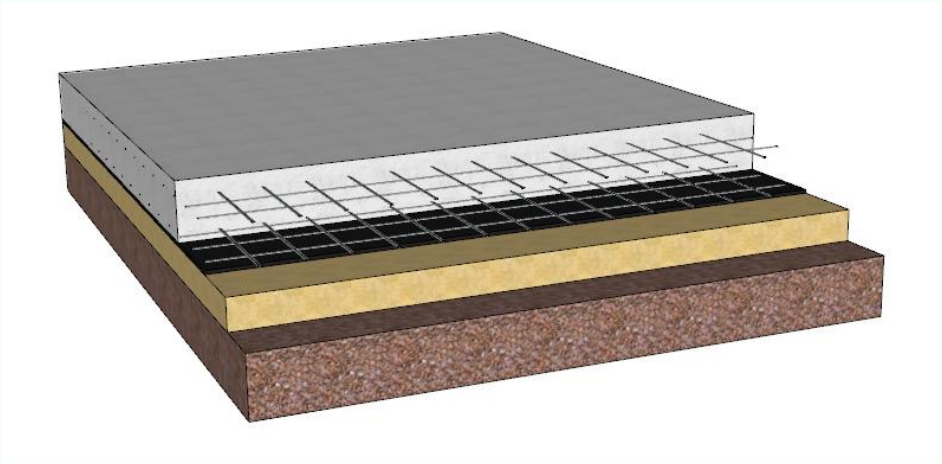
Plated fundamental



This is a slab foundation located under the entire area of the house. The slab can be solid or lattice. It consists of a metal frame filled with concrete in a monolithic manner. The slab can be assembled from prefabricated concrete beams in the form of a lattice. The ends of the placed beams are connected to each other.

Fully enclosed or lattice monolithic slabs are used when the house is built on unstable, heaving, heaving soils prone to uneven deformation. In this case, groundwater may be high.

The common metal frame in a solid or lattice slab distributes the loads evenly and increases the rigidity of the entire volume of the slab. Such a design can neutralize the loads that arise during uneven deformations of the soil. Therefore, sometimes the slab foundation is called "floating".

To build a slab, you will need a lot of building materials - reinforcing frames, concrete.

Therefore, it is advisable to use this type if the slab itself can be used as a floor with a small perimeter of the building: a garden house, a garage, a sauna.

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Slab foundation

Comparison result of strip and slab foundations

The most economical and labor-intensive option is columnar supports, they are one and a half to two times cheaper than reinforced concrete strip foundations; However, they are not sufficiently stable in horizontal soil deformation. On loose soils, additional strengthening measures will have to be taken.

The technology for constructing all types of strip foundations is simple. However, digging and filling trenches requires a large amount of earthwork . Although the result is a high-strength monolithic reinforced concrete strip, the cost of concrete is high and the work is labor-intensive. prefabricated blocks are faster to install, but the joints are more watertight.

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Monolithic slab foundations are intended for construction on heaving soils prone to deformation. The cost is high due to the high consumption of concrete and reinforcing bars.

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