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The cell raft consists of the arrangement of two-way interconnected foundation beams with a ground bearing slab on the underside and a hanging slab on the upper surface. The upper and lower slabs are usually incorporated into the beams to form sections I. Intersecting beams effectively break a large slab into a two-sector, covering continuous small panels (see figure 9.26). The top plate is cast using precast soffits or other forms of permanent work such as light filling blocks. These rafts are used in areas subject to major mining activities or in areas with poor soil where large bends need to be resisted. They are also used in places where a valuable increase in bearing capacity can be achieved by removing overload and where deep foundation beams are required. Fig. 9.26 Cell raft. The foundation of the raft is a very commonly used type of foundation system.

The Raft Foundation is also known as the Mat Foundation. Defining a raft foundation along with the principle of work when to choose a raft, types of raft foundation, raft foundation materials, raft building steps, etc. are discussed below. What is the Raft Foundation? The raft foundation is actually a thick concrete slab, resting on a large area of soil, reinforced with steel, supporting columns or walls and carrying cargo from the structure to the soil. Typically, the mat foundation spreads throughout the area of structure it supports. Raft foundation is usually used to support structures such as residential or commercial buildings where soil condition is poor, storage tanks, bunkers, foundations for heavy industrial equipment, etc. Working principle of the Raft Foundation In order to get a better idea of when to use a raft foundation, it is important to understand how the raft fund works. Let's take a quick look at how it works. Raft's foundation transfers the total load from the building to the entire area of the first floor. The mechanism of distributing the stress of the raft foundation is very simple. The total weight of the mat's design and self-esteem is calculated and divided into the total area of the foundation it covers to calculate the load on the soil. As with a dense foundation, the contact area of the foundation with the soil is much larger than any other type of foundation, so the load is distributed over a larger area and, therefore, the load on the soil is less, and the probability of failure of removal of the ground is also reduced. When choosing Raft Foundation For foundation design, one of the most important aspects is choosing the right type of foundation. The raft foundation is preferred when the soil has a low bearing capacity. The load on the structure should be distributed over a large area. The individual or any other area of the foundation will approximately cover 50% of the total area of land under the structure. Columns or walls so close that the individual foundations of the foundation The pressure on the soil needs to be reduced. There is a possibility of a differentiated settlement in the case of the use of an individual basis. When soil layers are unpredictable and contain pockets of compressed soil. The basement has to be built. Any other type of prop cannot be used profitably. Raft Foundation Several types of Raft foundation can be used depending on the condition of the soil and the load placed on the foundation. Below are the different types of foundation raft used in construction: the following are briefly discussed different types of mat foundation.1 The Mat This flat slab is the simplest form of a foundation raft. This type of mat is used when columns and walls are evenly spaced at short intervals and the loads are relatively small. The fortification is placed in both directions and more reinforcements are required in the columns and supporting walls. The thickness of this type of raft foundation is usually limited to around 300 mm for economic reasons. A thicker stove would not be economical. The slab thickened under the columns, when the columns and the loads bearing the walls are subjected to heavier loads, the slab thickens under columns and walls, and additional reinforcement is provided to resist diagonal haircut and negative reinforcement.3. Two-dimensional beam and slab In this type of raft beams cast monolithically with the raft slab connecting columns and walls. This type of raft is suitable when the columns are located at a greater distance and the loads on the columns are variable.4 Plates with pedestals In this type of mat, the pedestal is provided at the base of the columns. The purpose of this type of foundation is the same as a flat plate thickened under columns. Piled Raft This type of raft foundation is supported on stilts. The folded raft is used when the soil is very compressed at a shallow depth and the water table is high. The piles under the raft help in shrinking the settlement and provide stability against buoyancy. Rigid Frame Mat/Cellular Raft Foundation In this type of raft, the foundation walls act as a deep beam. A strict frame mat is called when columns carry extremely heavy loads, and connecting beams exceed a depth of 90 cm. Here are two concrete slabs, one on top of the other and connected to the walls of the foundation in both directions and thus forms a cell raft foundation. This type of raft is very rigid and economical when the required thickness of the slab is very high. The materials used for the Raft Foundation Construction Here are some of the materials used to erect the Raft foundation-form work of Spacer Strengthening Concrete. Below is the process of building the raft Key foundation stages of the raft foundation construction. Identify the depth at which the foundation should be provided. Excavation of the soil to the necessary depth. Seal the soil. Provide waterproofing Pour 3 planes of cement-sand paste. Lying lying down Maintain the necessary interval with the help of spacers. Pour the concrete to the desired depth. Treatment. In conclusion, the mat is one of the most common and popular types of foundation system because of its simple construction process and its efficiency, where the soil condition is poor at a shallow depth. It is necessary to study the condition of the soil and analyze the condition of the loading of the building for optimal use of the foundation and take the necessary precautions for safe construction. Sticking size (px) 344 x 292429 x 357514 x 422599 x 487 DESCRIPTION Cellular raft Text Cellular Raft Foundation Cellular Raft Foundation cellous raft foundation built on loose soil and soil that tends to settle unevenly, such as inactive mining plot. In this state, the thickness of the built slab can exceed 1 meter, so it is preferable to build a cell raft. This type of foundation consists of two concrete slabs, which are located at a distance from each other. Beams are built between two slabs in both directions, forming a hollow cell raft foundation. The cell raft foundation is very hard and is more economical compared to a stove with the same thickness and stiffness. The purpose of the foundation is to resist vertical, side and lifting load and transfer the load of the foundation to solid soil. Suitable for loose soil or soil that tend to settle unevenly, such as back filled with inactive mining site. Other foundation types are not economical for this type of soil. Benefits and disadvantages Are suitable for loose soil or soil, which tends to settle unevenly, such as back-filled inactive extraction sites. Other foundation types are not economical for this type of soil. The cell raft consists of the arrangement of two-way interconnected foundation beams with a ground bearing slab on the underside and a hanging slab on the upper surface. The upper and lower slabs are usually incorporated into the beams to form sections I. Intersecting beams effectively break a large slab into a two-sector, covering continuous small panels (see figure 9.26). The top plate is cast using precast soffits or other forms of permanent work such as light inll blocks. These rafts are used in areas subject to major mining activities or in areas with poor soil where large bends need to be resisted. They are also used in places where a valuable increase in bearing capacity can be achieved by removing overload and where deep foundation beams are required. Subscribe to The Constructor to ask questions, answer questions, write articles, and connect with others. VIP members additional benefits. Do you have an account? Sign in raft foundation - One of the most commonly used types of foundation in construction is a slab that builds on the soil and covers the total area of the proposed structure. There are different types of raft foundations based on their application. Choosing the type of foundation raft depends on many factors such as load capacity, load, site conditions, etc. Video Raft Foundation-Types and Benefits What is a raft foundation? CASTING OF RAFT FOUNDATION Raft Foundation/Mat Foundation is a solid slab located at a designed depth, spreading it throughout the entire design area. The raft foundation consists of columns and walls with shear to carry loads coming to the construction on the ground. These types of foundations are used mainly when the bearing capacity of the soil is low and it becomes difficult for individual bases to

negotiate loads. The foundation of the raft helps to transfer the entire load of the structure to a large area. The principle of the base of the raft Foundation transfers the total loads coming from the structure to the entire area of the structure. They can reduce soil stress compared to other types of foundations used in civil construction. This stress-distribution mechanism makes the raft of foundations unique from other funds. Soil Stress Stress Stress Calculation - Total Load, Applied to structure - Self-weight raft / raft area foundation Consider the total load is 300 T and the size of the foundation Size : 20 m x 10 m Stress on soil 300/200 and 1.5 t/sq.m The same structure is maintained with 8 individual base size : 2m x 2 m Total area - 8 x 4 - 32 sq m. Stress on the ground - 300/32 x 9,375 tons/sq.m. This shows that the same load we receive is 1.5 T/sq m for the raft and 9,375 T/sq m for individual foundations. As the raft contact area more load is distributed over the larger area and hence the forces coming onto the soil much less. Factors influencing the choice of raft foundation raft Raft foundations are usually preferable to other funds when the following conditions occur. (a) When the bearing capacity of the soil is very low for designing individual support and executing deep foundations, such as a pile foundation, it proves costly. b) When the bearing capacity of the soil is less and the stresses induced in the soil should be reduced. c) Columns, haircut walls, etc. come so close together and the chances of individual props over splashing each other. d) Any other type of foundation can cover more than 50% of the total land area below the structure. If unequal settlement is possible. (f) Preferred for complex equipment foundations. (g) Used when the proposed structure of Raft basements bases are suitable for basement structures where foundation slabs can receive direct live loads according to the usefulness of the building. Areas where soil conditions are very poor and access for large earthmoving equipment is limited, the raft The best option as excavations can be done with the help of light excavators. Solid slab Raft FoundationSlab Beam Raft FoundationPiled Raft FoundationCellular Raft FoundationBalancing or Floating raft foundation solid raft foundation slabs in this type of raft foundation, columns and walls equally removed and load distribution is also equal. These types of base raft are designed as slabs with uniform thickness and are known as solid base raft plates. Strengthening for these types of foundations includes the bottom layer and on top there are four different types of solid raft slabs of foundations a) The flat raft mat flat raft mats are used for small buildings where the column is the distance uniform and the foundation covering the overall area of the structure. These types of foundations have lower and upper reinforcement b) A wide raft This type of raft foundation is used when needed to save structure. A full-size sturdy foundation cooker mat may not be necessary to negotiate the load coming into the structure. In this case, both sides are provided with a heavily reinforced burden, as shown in the picture, which can handle loads (c) Blanket raft foundation Blanket raft rafts are used when the surface may have unequal settlements or having non-uniform layers. In this case the surface is compacted stone blankets will be stacked, as shown in the picture. Stone blankets along with a raft of shoes negotiate loads coming on the structure. d) Slip plane rafts This type of foundation carries a fully compacted sandy bed under the raft. The size of the sand glaz should be slightly larger than the size of the raft to carry loads. The sides of the foundation can be filled with any compressed material. Slab beam-like raft foundation slabs like raft foundation When loads are unevenly distributed and the foundation is vulnerable to distortion. Beams included in the slabs act as z buttons. Strengthening the raft consists of two layers of grids, one at the bottom and one at the top. Beams can provide additional stiffness and prevent distortion. A piled raft of foundation piled a raft of foundations in this type of Mat Foundation, rafts supported by pile foundations, as shown. These types of foundations are used when the loads coming into the structure are extremely high, the capacity of the bearing soil is very low and the water level is very high. The piled foundations of the raft are well suited for high-rise buildings, heavy industrial structures such as high-rise RCC chimneys, bunkers, storage tanks, which usually rely on individual elements of the foundation. They are not used for conventional residential applications because of their high cost. The Piled raft basics eliminate the idea of designing a very heavy foundation raft or a very conservative foundation pile with great depths. Instead, they choose optimized raft foundation and pile foundation structure capable of sharing loads. The foundation of the raft floats above the pile base. Mainly used in structures like chimneys, bunkers, bunkers, overhead storage tanks, etc., where even marginal soil settlement can lead to structure failure. The cellular raft foundation of the cell raft is the foundation of the cell raft consists of the arrangement of two-way foundation beams with a solid slab, resting on the ground below and a hanging slab on the top surface. The upper and lower plates are matched by intermediate beams, transforming the foundation into the structure of the beam l. To cover the top slab precast soffits can be used. The top casting cooker is made using precast spotlights. or other forms of permanent work form or sacrificial form work or filled with light filling blocks. It is mainly used in areas where there is acute mining activity and poor production capacity for soil. Huge moments of bending must be opposed to the foundations. In these cases, cell rafts are the preferred option. Cellular rafts are used to increase bearing capacity when removing overload. The pressure of lifting the soil can be controlled by cell rafts. BALANCING OR FLOATING RAFT FOUNDATION Balancing rafts or floating foundations are used in areas where the bearing capacity of the soil is very poor and should support soil settlements within the acceptable range. The floating foundation works on the principle that the total weight of the soil, together with the water taken from the excavation, should be equal to the weight of the proposed structure. MUST READ: Balancing rafts or FLOATING RAFT BASIC Benefits Raft Foundation completed a raft of foundation. Raft foundations are a safe and economical solution compared to other small and deep foundation types. (a) Raft foundations are preferred in areas with low soil bearing capacity, uneven settlements and mixed soil types. These foundations reach capacity by distributing voltages over a larger area. b) In densely populated urban areas, access to facilities is largely limited, and the mobilization of heavy machinery for the construction of the foundation by other methods is not possible. Raft foundations can be made using very light machinery because of their smaller heights. c) To limit the limits of settlement under the codal provisions of the raft, the foundations provide a much-needed option for designers compared to other isolated funds. d) Designers can choose higher settlement values when compared to normal basics when performing the design process. The foundation of the raft avoids the unequal settlement (e) Raft basics are a very flexible design option that can be configured in with soil conditions and suitability for work. (f) Performing the Raft foundation is easier than individual foundations. This, in turn, can increase the speed of the project. Project. FROM RAFT FOUNDATION When soil conditions are very poor most of the time the raft design is not considered economical. Complex rafts consume a huge amount of concrete and steel, require precise professional/technical supervision and manufacturing. This, in turn, makes the structure more expensive than any other alternative funds. The soil under the foundation, mostly at the edges, to be preserved by Pile the foundations are more economical than the raft of foundations when the soil conditions are very poor. READ ALSO: Cement properties - Everything you need to know cellular raft foundation pdf. cellular raft foundation ppt. cellular raft foundation dimensions. advantages of cellular raft foundation. explain cellular raft foundation. rigid frame mat/cellular raft foundation. distinguish cellular raft from beam and slab foundation. cellular raft foundation design

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