

Structural frameworks

1. Fill in missed words. Translate the sentences.

A tight schedule, design, cost calculation, iron out, postpone

1. We must _____ all conflicts between team members.
2. Architects carry out detail _____ in collaboration with the team.
3. A cost manager provides complete _____
4. It turned out that the President had _____.
5. Everybody can _____ the choice but nobody can escape it.

2. Find the translation

1.	joint configuration	a)	стержневая конструкция
2.	lintel	b)	крепящий эффект
3.	post	c)	стропильная ферма
4.	strain of deflection	d)	столп, опора
5.	truss	e)	как можно скорее
6.	cantilever	f)	совместная конфигурация
7.	slab	g)	цоколь; постамент
8.	bar system	h)	поперечная перекладина
9.	as soon as possible	i)	перемычка окна или двери
10.	roof parapet	j)	мачта, подпорка, свая, стойка
11.	joist	k)	парапет крыши
12.	pillar	l)	консоль, кронштейн
13.	plinth	m)	натяжение прогиба
14.	stanchion	n)	плита
15.	stiffening effect	o)	Стойка
16.	Beam	p)	прогон
17.	girder	q)	балка

3. Read the text and answer the questions before it.

1. What are the spheres of application of the cantilevered beam?
2. What is a cantilever?
3. Why must the support of the cantilevered beam be fixed?
4. What are the main three advantages and three disadvantages of the cantilevered beam?
5. How does a cantilever carry weight on its open end?
6. Write some examples of application of the cantilevered beam?

CANTILEVER BEAM – ITS IMPORTANCE AND 7 USES

The cantilever beam is a beam that is fixed at one end and set to be accessible at the other end and distributes the load back to the support where it is forced against a moment and shear stress. And cantilever beam allows the creation of a bay window, some bridges, and balconies.

The cantilever beam carries a specific weight on its open end due to the support on its enclosed end, and the weight would be generated on the beam structure in addition to breaking down as a result of the shear stress.

Without external support pillars, cantilever construction allows for overhanging structures, and also, with trusses or slabs, a cantilever beam can be constructed. The support must be fixed, which can support forces and moments in all directions to ensure the structure is static.

A balcony is an excellent example of a cantilever beam, and it is supported on one end only, and the rest of the shaft extends over open space, and nothing supports it.

The cantilever beam is used in;

1. In Buildings.
2. Cantilever bridges.
3. Overhanging projections and elements.
4. Balconies.
5. Machinery and plants such as cranes.
6. Overhanging roofs like shelters and stadium roofs.
7. Shelving and Furniture.

In building constructions, there are various applications of the cantilevered beam such as cantilevers carrying a gallery, roof, runway for an overhead travelling crane, or part of a building above and also used in various structures such as sun shed, shelves, large halls, exhibition buildings, and armouries.

There are the following advantages of this beam such as;

1. In construction, these beams are simple.
2. On the opposite side, it does not require support.
3. This beam generates a negative bending moment which counteracts the positive bending moment of back spans.
4. Because of the beam added to the cantilever arms, the span can be greater than that of a simple beam.
5. Thermal expansion and ground movement are reasonably simple to sustain because the beam is resting simply on the arms.
6. Due to their depth, cantilever beams are very rigid.

There are the following disadvantages of this beam such as;

1. These beams have large deflections.
2. This beam generally results in more significant moments.
3. You need to check for the uplift of the far support and either need to have fixed support or have a back span.
4. The moment at the fixed end is higher when the beam is loaded at one end, and it can break free from the support if more load is applied.

4. Make a sketch of a building using following words. Write down all elements.

Lintel, cantilever, roof slab, foundation, roof parapet, external wall, internal wall, beam footing, column, ceiling joist, floor joist, bearing wall, non-bearing wall, stairs.

5. Name all reinforced concrete elements of a building in English.

