NOTAM

NOTICE TO AIR MANAGERS

*"**Intellectuals are not born, but are made.** I believe the aim of education is the knowledge not of facts but of values. I strongly believe in the capabilities of student's community and ensure everything best to reach them for their promising growth.*

- Sri Ch. Malla Reddy (Chairman, MRGI)

Dr. V.S.K. Reddy
Principal, MRCET

A thought beyond horizons of success committed for educational excellence. "Wishing all the aeronautical Engineering students all the success in future endeavors".

SwetaBala M.N.V.S

HOD, Dept. of AE

It is a very happy moment to start a Newsletter especially for Aeronautical Engineering Students. I whole heartedly wish the students a grand success in carrying out this Herculian task. I express my deep sense of gratitude to all the faculty members and students for helping me in bringing out this newsletter. I personally wish that this Newsletter in the long run will and should cater all the career oriented needs of an Aeronautical student and help them in a better way.

Prof. T.B.S. Rao
(Wg. Cdr.) (Director, AE)

A creative and innovative thought given by the aeronautical engineering students which will propel future generation towards their goals as an aeronautical engineer. This News letter helps all the aero students in research /project works during their final year semester and career prospection and future planning after completion of assigned coursework succesfully
I convey my best regards to all the students who participated in making this bulletin and the deep concern

What's Inside:

A cantilever is a rigid structural element, such as a beam or a plate, anchored at only one end to a (usually vertical) support from which it is protruding. Cantilevers can also be constructed with trusses or slabs. When subjected to a structural load, the cantilever carries the load to the support where it is forced against by a moment and shear stress.[1]

Cantilever construction allows for overhanging structures without external bracing, in contrast to constructions supported at both ends with loads applied between the supports, such as a simply supported beam found in a post and lintel system.

In Bridges, Towers and Buildings.

Cantilevers are widely found in construction, notably in cantilever bridges and balconies (see corbel). In cantilever bridges the cantilevers are usually built as pairs, with each cantilever used to support one end of a central section. The Forth Bridge in Scotland is an example of a cantilever truss bridge. A cantilever in a traditionally timber framed building is called a jetty or forebay. In the southern United States a historic barn type is the cantilever barn of log construction.

Temporary cantilevers are often used in construction. The partially constructed structure creates a cantilever, but the completed structure does not act as a cantilever. This is very helpful when temporary supports, or falsework, cannot be used to support the structure while it is being built (e.g., over a busy roadway or river, or in a deep valley). So some truss arch bridges (see Navajo Bridge) are built from each side as cantilevers until the spans reach each other and are then jacked apart to stress them in compression before final joining. Nearly all cable-stayed bridges are built using cantilevers as this is one of their chief advantages. Many box girder bridges are builtsegmentally, or in short pieces. This type of construction lends itself well to balanced cantilever construction where the bridge is built in both directions from a single support.

These structures are highly based on torque and rotational equilibrium.

In an architectural application, Frank Lloyd Wright's Fallingwater used cantilevers to project large balconies. The East Stand at Elland Road Stadium in Leeds was, when completed, the largest cantilever stand in the world holding 17,000 spectators. The roof built over the stands at Old Trafford Football Ground uses a cantilever so that no supports will block views of the field. The old, now demolished Miami Stadium had a similar roof over the spectator area. The largest cantilever in Europe is located at St James' Park in Newcastle-Upon-Tyne, the home stadium of Newcastle United F.C.

Less obvious examples of cantilevers are free-standing (vertical) radio towers without guy-wires, and chimneys, which resist being blown over by the wind through cantilever action at their base.

Use in Aircrafts

Another use of the cantilever is in fixed-wing aircraft design, pioneered by Hugo Junkers in 1915. Early aircraft wings typically bore their loads by using two (or more) wings in a biplane configuration braced with wires and struts. They were similar to truss bridges, having been developed by Octave Chanute, a railroad bridge engineer. The wings were braced with crossed wires so they would stay parallel, as well as front-to-back to resist twisting, running diagonally between adjacent strut anchorages. The cables and struts generated considerable drag, and there was constant experimentation on ways to eliminate them.

It was also desirable to build a monoplane aircraft, as the airflow around one wing negatively affects the other in a biplane's airframe design. Early monoplanes used either struts (as do some current light aircraft), or cables like the 1909 Bleriot XI (as do some modern home-built aircraft). The advantage in using struts or cables is a reduction in weight for a given strength, but with the penalty of additional drag. This reduces maximum speed, and increases fuel consumption.

The most common current wing design is the cantilever. A single large beam, called the *main spar*, runs through the wing, typically nearer the leading edge at about 25 percent of the total chord. In flight, the wings generate lift, and the wing spars are designed to carry this load through the fuselage to the other wing. To resist fore and aft movement, the wing will usually be fitted with a second smaller drag-spar nearer the trailing edge, tied to the main spar with structural elements or a stressed skin. The wing must also resist twisting forces, done either by a monocoque "**D**" tube structure forming the leading edge, or by the aforementioned linking two spars in some form of *box beam* or *lattice girder* structure.