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ROLLFORMING

Cold Rollforming of Aluminium

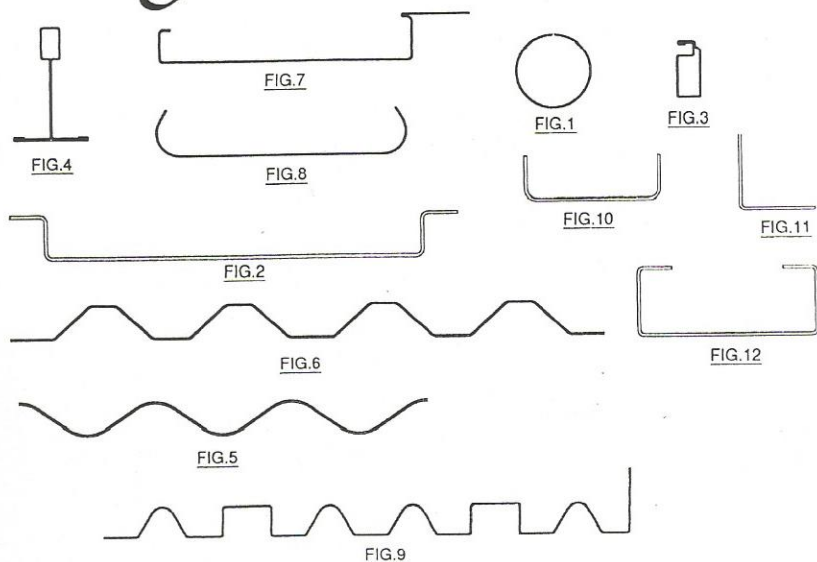
A.S. SHETTY

In this twelfth series of articles on Rollforming we will discuss about rollforming of Aluminium sections which is also increasingly going to be the future trend. It is generally believed that aluminium sections are only extruded or press-braked which is a misconception. The advantage of using rollforming is that much thinner thicknesses than extruded sections could be produced.

Further, aluminium is lightweight, doesn't rust and requires minimal maintenance. Aluminium is the most abundant metallic element on earth making up approximately 8% of the earth's crust. About 70% of all aluminium used is recycled at the end of its product life. The main drawback of using aluminium in structurals has been that aluminium can't easily be welded or soldered. MIG or TIG welding is employed with certain precautionary measures.

Especially in the bus body panels they used to be earlier joined by riveting. The lightweight aluminium often rattles in the wind, and its excessive movement sometimes caused fasteners to work loose. To get the best out of the aluminium material work hardened grade material has to be used. A still better strength combined with durability would be achieved by going for work hardened grade alloyed aluminium. Pre-painted and pre-anodised aluminium coils are also for rollforming. Because of its lower weight there is still a lot of scope in using aluminium components in bus-bodies, automobiles and railway coaches.

Fig.1 to Fig.12 shows some of the aluminium rollformed sections. Out of these, apart from insect-screen frame sections (Fig.3) several other sections have been developed by Sedvik Industries, Bangalore. Fig.1 shows TV antenna open joint tube. Fig.2 shows busbody panel section. Fig.3 shows insect-screen frame sections. Fig.4 shows composite false ceiling section where for the main load carrying portion G.I strip is used and for the exposed exterior portion pre-painted aluminium strip is used as capping section. Fig.5 and Fig.6 show aluminium roofing sheet sections which are also slowly getting popular. Fig.7 & 8 show other false ceiling sections. Fig.9 shows aluminium scuffliner section commonly used in refrigeration units. Apart from these, standard channel (Fig.10), angle (Fig.11), lipped channel (Fig.12) sections are also rollformed. There is ample scope for developing various other shaped sections.




Aluminium is still under used as a building material. In the advanced countries Kalzip brand is the pioneer in the usage of aluminium rollformed roofing sheets. For On-Site Rollforming they use Mobile Rollforming Machines. They claim that Kalzip roof system will have a minimum service life of 40 years in rural/ suburban environments and 25 years in industrial/marine environments. Under normal atmospheric condition the aluminium alloy 3004 used by Kalzip possesses high strength, has good corrosion resisting properties, is easy to work and can be welded. These corrosion resisting properties are significantly improved with the addition of a weathering layer of aluminium alloy generally referred to as Clad Alloy. Clad Alloy consists of a central core of 3004, 5555 or 5553 alloy with a layer of aluminium zinc 7072 alloy on both sides. Kalzip has also pioneered the development of Solar Panelled Roofing System. i.e integrating the clean solar energy producing solar panels into the Kalzip Roofing System. This idea is catching up at a rapid speed in most of the developing countries nowadays. Environment friendly solar power systems are going to be the future trend in the coming years.


Another area of development is the growth of Nature Roofs. Nature Roof is a low maintenance, lightweight planted roof system that is made up of standing seam Kalzip roof filled with drainage, substrate and plant layers. Most of the unused space in the cities and towns is on Roof-tops. The idea of improving life by making space for nature in the form of parks and gardens on roof tops is going to be an exciting possibility and is fast catching up in some of the advanced countries.

The author Mr. A S Shetty is the Honorary Editor of this journal and the Chief Executive of Sedvik Industries. For further details he can be contacted at 080-25452669. For the previous issues containing articles on Roll Forming you can send the request to info@haritha.org

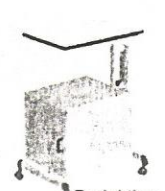
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