

# ROLLFORMING

## Sections used in Air conditioning, Ventilation and Refrigeration Systems

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In this Twentythird series of articles on Rollforming we will discuss about the sections used in Air conditioning and Refrigeration Fields. These are the areas where rollformed sections are being used since several years in the Western countries. Especially heating, ventilation and air conditioning are the important processes found in building structures. The acronym for heating, ventilation and air conditioning is HVAC. The temperature inside a building is regulated by HVAC systems.

Air ventilation systems are extensively used in the field of Pharmaceutical, underground mining industries, underground tunnels and many other industries. Having proper ventilation is important for any building construction. Further, ventilation is crucial in removing harmful gas and replacing with fresh air in order to get a good work environment. Apart from these, in the cold countries, home heating and cooling systems are the necessary items.

There, almost all the dwelling houses are provided with heating, ventilating and air conditioning systems and as such the requirements of ducting systems are immensely large.

These systems consume between 40 and 60 percent of the total energy in most commercial buildings. Duct systems used in these systems are an important element in home/office energy efficiency. Ducts lose energy when air leaks into or out of them.

Predominantly in India fabricating ducts is done at building sites itself using basic hand tools which is a slow process and also the quality of work will not be consistent, whereas factory made sheet metal ducting is faster and are of consistent quality. Automated factories for sheet-metal ducting are common in the advanced countries and there are many such factories in each country.

Mostly rectangular ducts are formed out of sheets of limited lengths with seams along the long lengths. Most of the seams will be in the side faces of the duct section and the joints are "Acme" lock type as shown in Fig. 5.

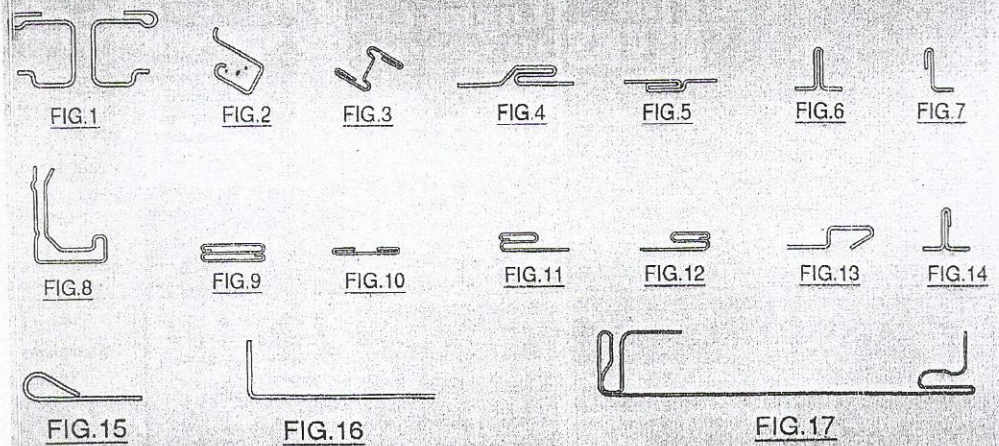
These joints are relatively poor from both leakage and rigidity considerations. In the western countries they use mostly coils rather than sheets. There, the seams are normally located on the edges. The joints they adopt is called "Pittsburg" or "Snap" lock type. Both the types of joints provide lesser leakage and higher rigidity. As compared to fixed length sheets the wastage is considerably less when the material is in the coil form.

Fig. 1 to Fig. 16 are some of the rollformed sections used for

producing Duct connector, HVAC, Snap-Lock and TDC sections. The sections shown in Fig. 1 are TDC Profiles joined with optional clips. Fig. 2 and Fig. 8 are TDC profiles. Fig. 3 are Zee Bar sections. Fig. 4 is Pittsburg Lock Section. Fig. 7 are standing seam sections. Fig. 6 are T-Sections. Fig. 9 are S Cleat sections. Fig. 10 Drive cleat Sections. Fig. 15 are Hemming Sections.

Fig. 7 is a rollformed Refrigerator panel section which are usually produced on a 24 to 28 stage pre-painted sheet roll forming machine. Sedvik Industries, Bangalore has taken part in the development of some the sections shown.

The sections shown are only a few of the typical sections which are rollformed. Many a time for producing particular type of sections separate machines like Duct Connector Machines, HVAC Rollforming Machines, Snap Lock Machines and TDC Machines are used. There are several times more types of sections which could be rollformed and the possibilities are limitless. In India, of late, the limitless possibilities of using rollformed sections with great economy in the field of air-conditioning, ventilation and refrigeration has been getting increasingly realised in the coming years.



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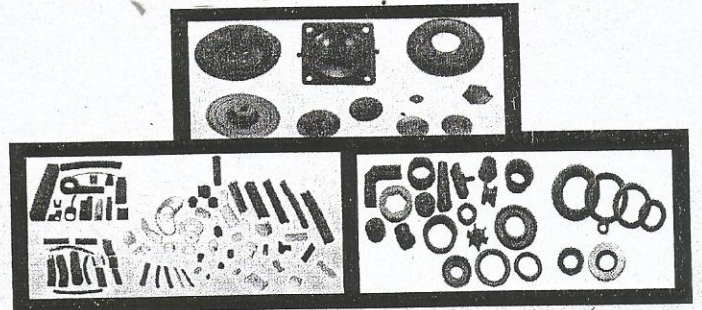
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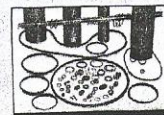
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