

1. GİRİŞ

Esas taşıyıcı sistemi çelik malzemeden olan yapılar çelik yapılar olarak adlandırılır. Diğer taraftan, yangın ve kimyasal etkilere karşı korunması için tüm çelik elemanlar, güçlendirilmesi için çelik kolonlar ve çok katlı çelik yapılarda betonarme döşeme yapılması gibi nedenlerden dolayı döşeme ve döşemenin mesnetlendiği çelik kirişler kompozit olarak tasarlanmaktadır. Dünyada oldukça yaygın olarak kullanılan kompozit elemanlı yapı taşıyıcı sistemleri ülkemizde istenilen yaygınlık düzeyinde kullanılmamaktadır. Bunun en büyük sorumlusu inşaat mühendisleri ve mimarlardır. Geleneksel yapı sistemlerinden çağdaş yapı sistemlerine geçişte yeni bilgiler edinmek, yeni programlar öğrenmek çoğu mühendis ve mimarımızın işine gelmemektedir. Bu nedenle geleneksel yığma ve betonarme yapı sistemlerini ısrarla uygulamaktadırlar. Halbuki, kompozit yapı sistemleri, bina tipi yapılarda, özellikle az katlı konut tipi yapılarda hem depreme dayanıklı yapı sistemleri olarak hem de hızlı ve güvenilir ve hatta düşük işçilik maliyetleri için alternatif çözümler üretebilirler.

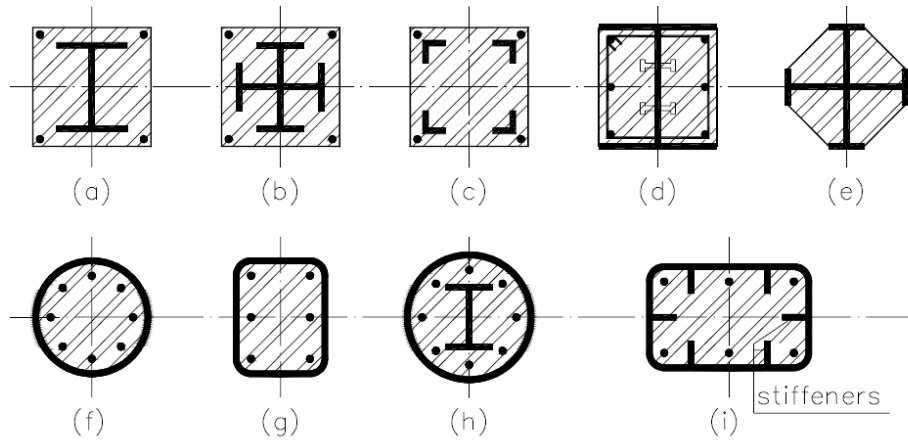
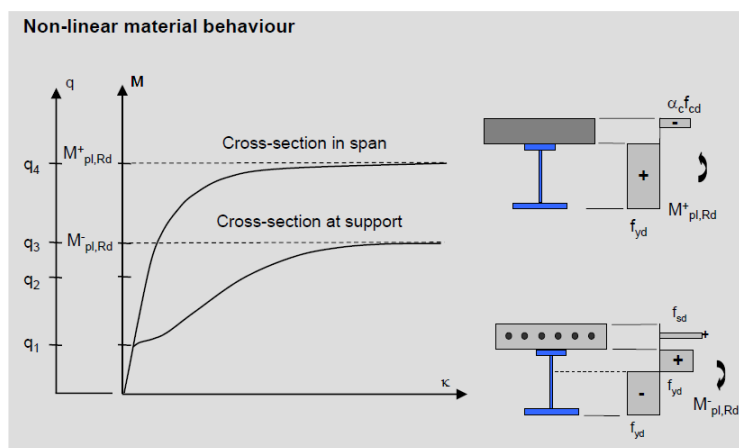
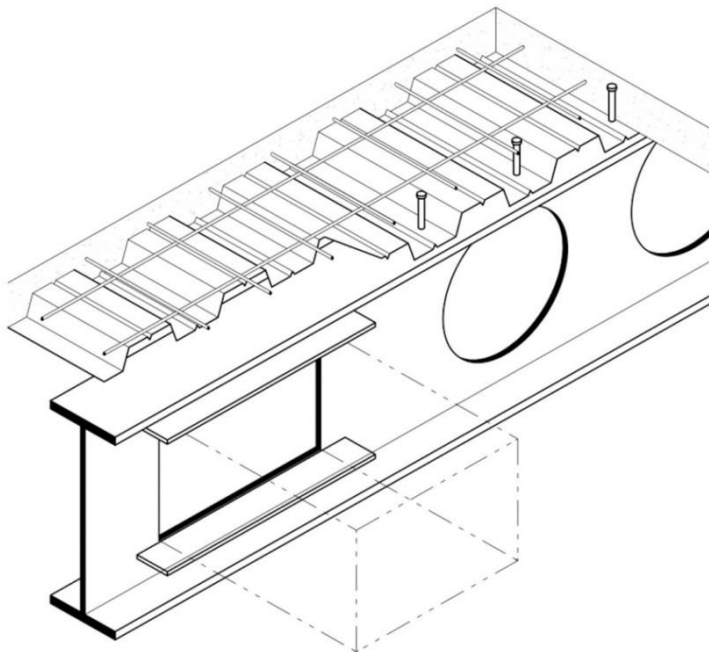
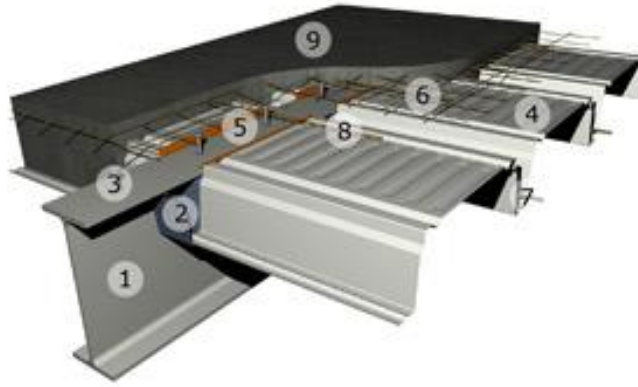


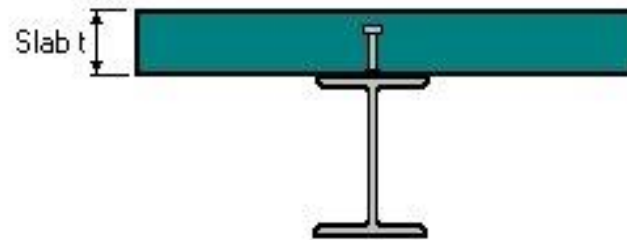
Fig.1 Typical cross-sections of composite column



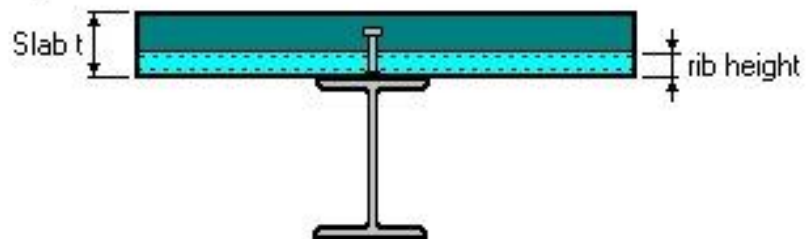




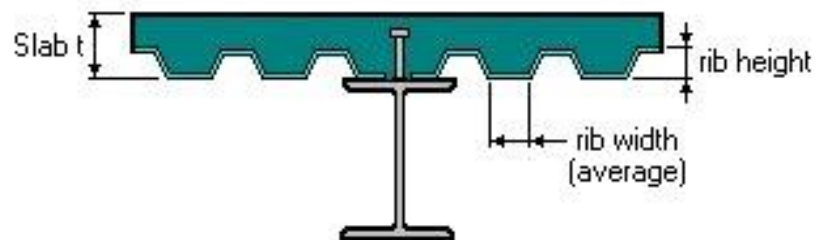
No Metal Deck:



Perpendicular Deck:



Parallel Deck:



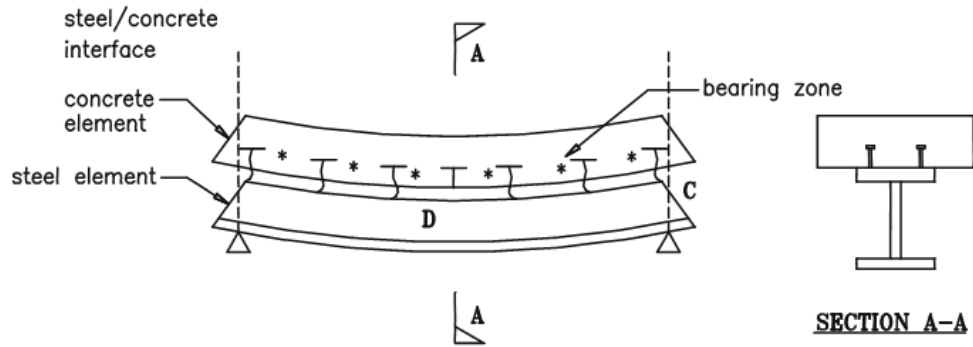


Fig.8 Load Bearing Mechanism

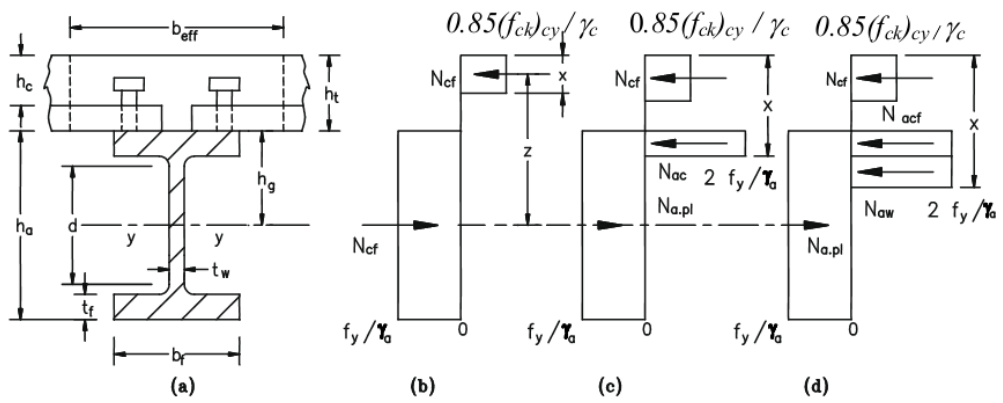


Fig.12. Resistance to sagging bending of composite section in class 1 or 2 for full interaction.

- Trapezoidal profile
- Re-entrant profile

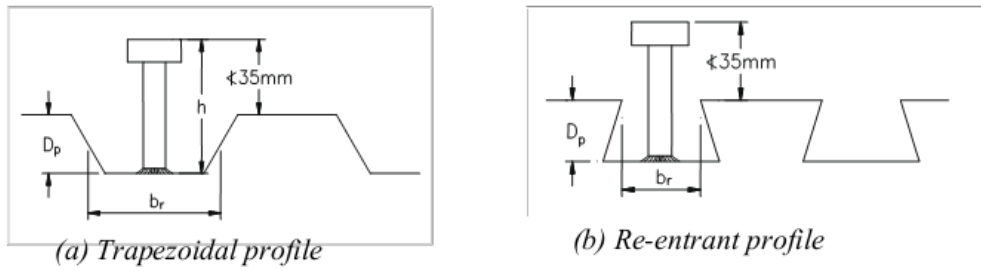


Fig. 1 Types of profile deck

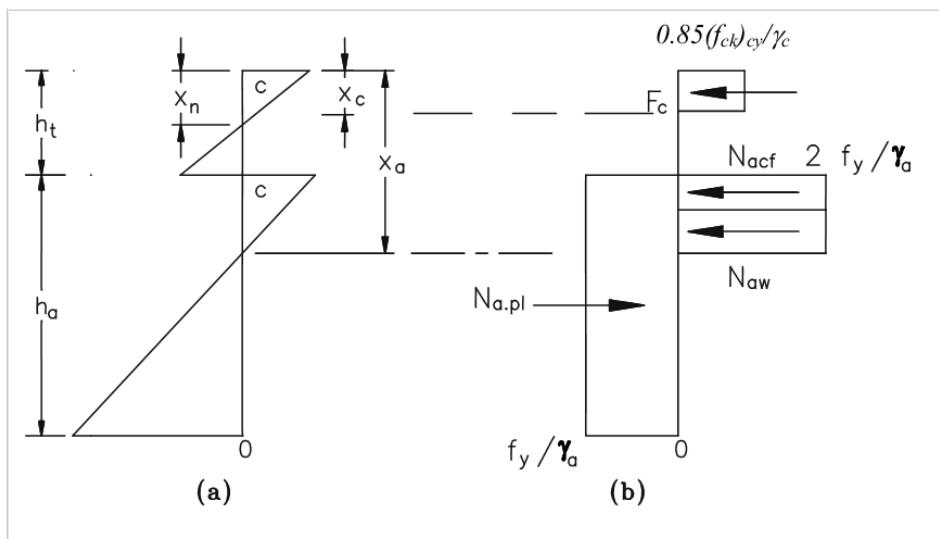


Fig.13. Resistance to sagging bending of composite section in class 1 or 2 for partial interaction

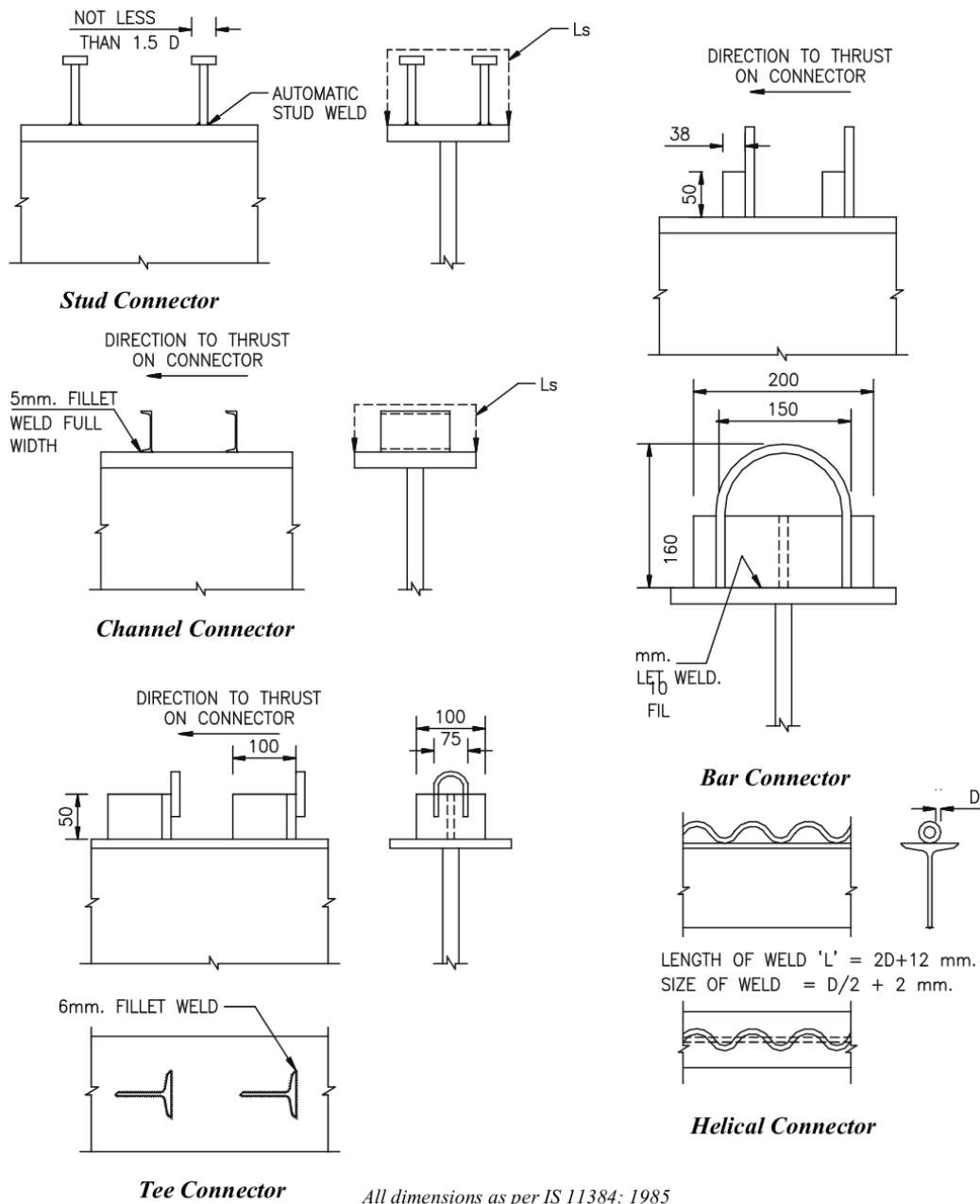
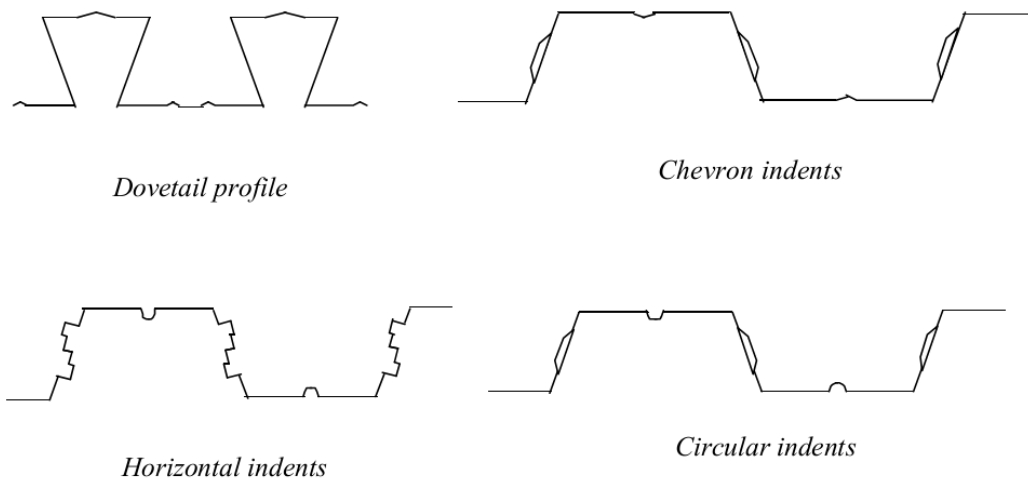
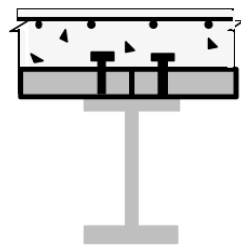


Fig. 5(d) Typical shear connectors

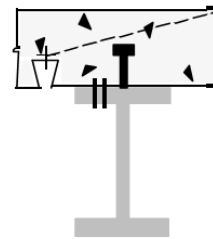
Fig. 5. Typical rigid connectors with anchorage device to hold down the concrete slab against uplift



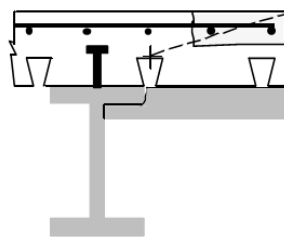
(a) Different profiles used



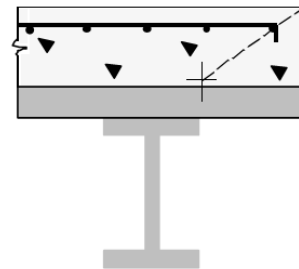
(b) Double stud butt joint



(c) Typical edge detail



(d) Side cantilever with stud bracket



(e) Typical end cantilever

Fig. 4 Deck profiles and typical details

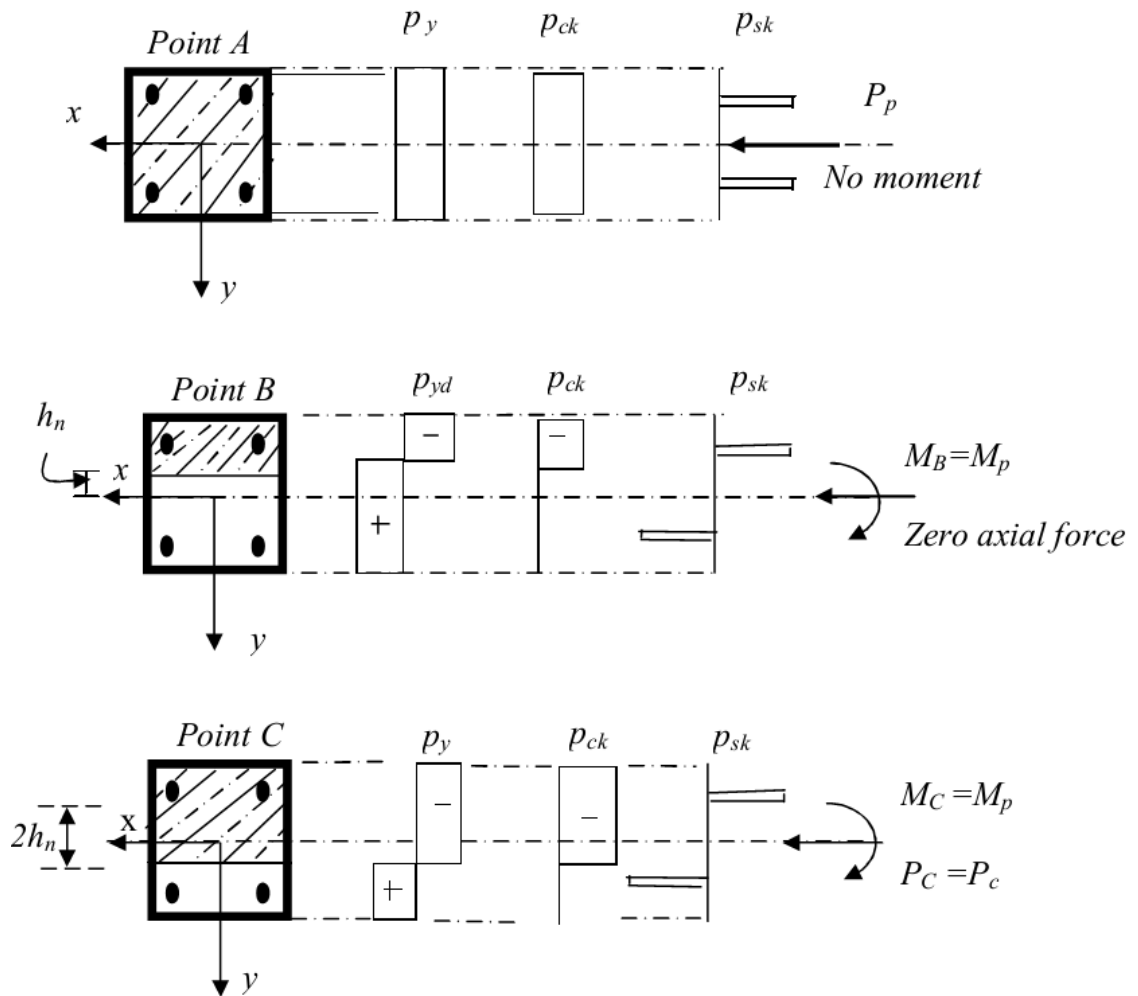


Fig. 3 Stress distributions for the points of the interaction curve for concrete filled rectangular tubular sections