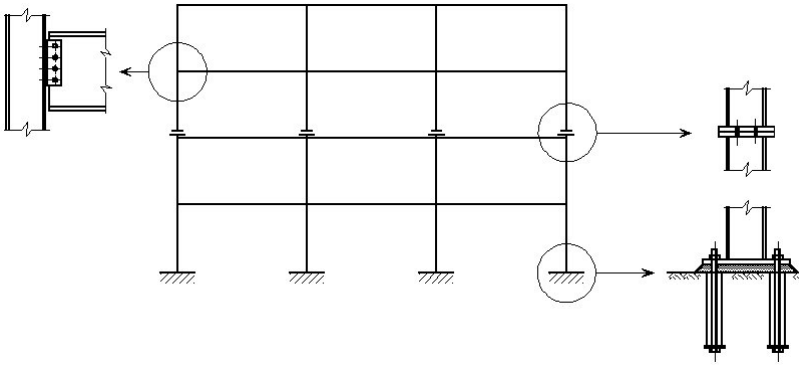

Projeto de Ligações - Introdução

Programa de Pós-Graduação em Engenharia Civil

PGECIV - Mestrado Acadêmico

Faculdade de Engenharia – FEN/UERJ

Disciplina: Ligações em Estruturas de Aço e Mistas

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1. Introdução

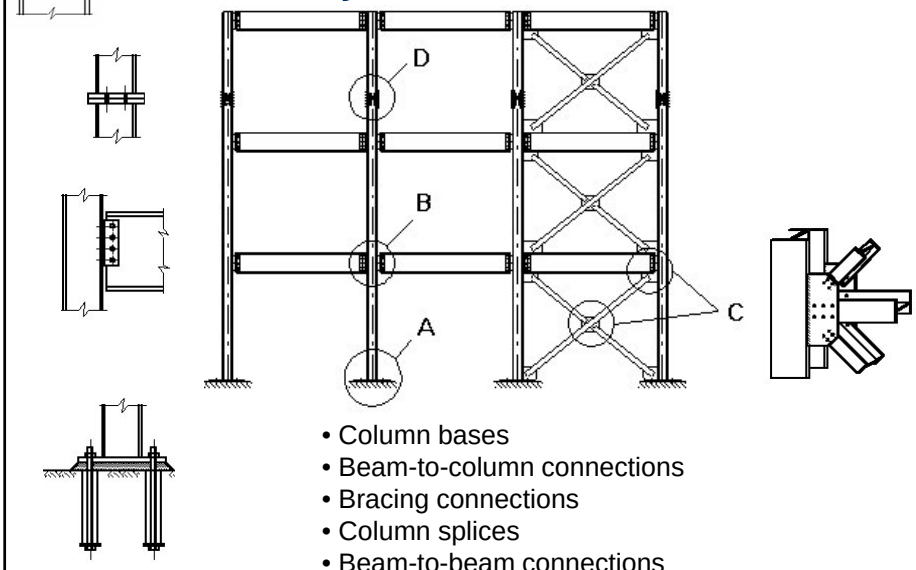
- Steel frame buildings consist of a number of different types of structural elements, each of which has to be properly attached to the neighboring parts of the structure. This will involve the use of several forms of connections. The main classes of connection are:

  ✓ Where a change of direction occurs, e.g. beam-to-column connections, beam-to-beam connections and connections between different members in trusses.

  ✓ To ensure manageable sizes of steelwork for transportation and erection e.g. columns are normally spliced every two or three storeys.

  ✓ Where a change of component occurs, including connection of the steelwork to other parts of the building, e.g. column bases, connections to concrete cores and connections with walls, floors and roofs.

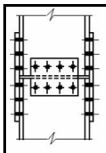
1. Introdução



- Column bases
- Beam-to-column connections
- Bracing connections
- Column splices
- Beam-to-beam connections

1. Introdução

- Connections are important parts of every steel structure. The mechanical properties of the connections are of great influence on the strength, stiffness and stability of the whole structure.
- The number and the complexity of the connections have a decisive influence on the time that is necessary for the statical analysis and the production of drawings.
- Production of connections, i.e. cutting, drilling and welding of main members, plates, cleats and stiffeners, consumes much of the work content in the fabrication shop.
- Thus the selection, design and detailing of the connections in a building frame has a very significant influence on costs.



1. Introdução

- This list does not, of course, include connections between the main framework and other parts of the structure, e.g. beams to floors, attachment of the cladding, etc.
- Despite the different geometrical configurations and detailed structural requirements of the five different types, certain general functional requirements must always be addressed:
  - ✓ The connections should be strong enough to transmit the design loads. To this end, they should be arranged to transmit internal forces from one member to another along smooth load paths so as to avoid severe stress concentrations.
  - ✓ They must posses the intended degree of flexibility or rigidity.
  - ✓ The connecting elements (plates or cleats) should be arranged such that, as far as possible, they are self-positioning, accessible for fixing (in the shop and on site), and capable of providing a 'good fit'.