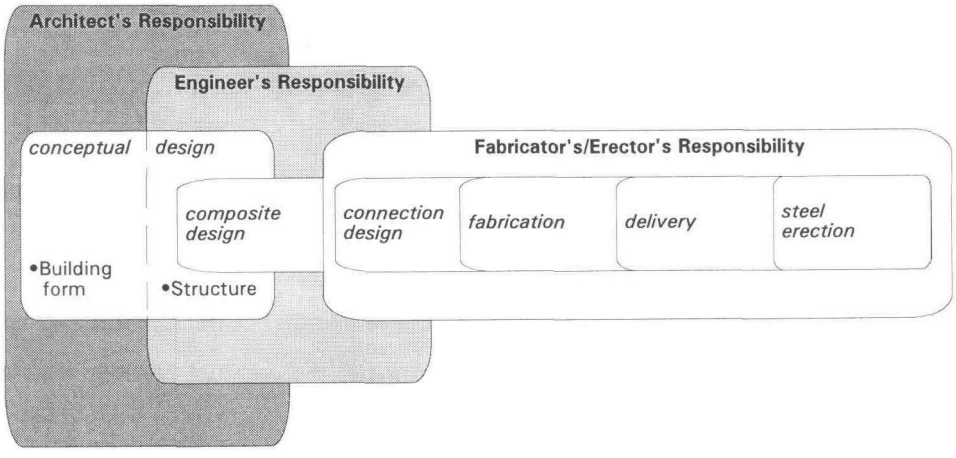

Figure 4.9 *Responsibilities for processes within the steelwork package, Senator House*

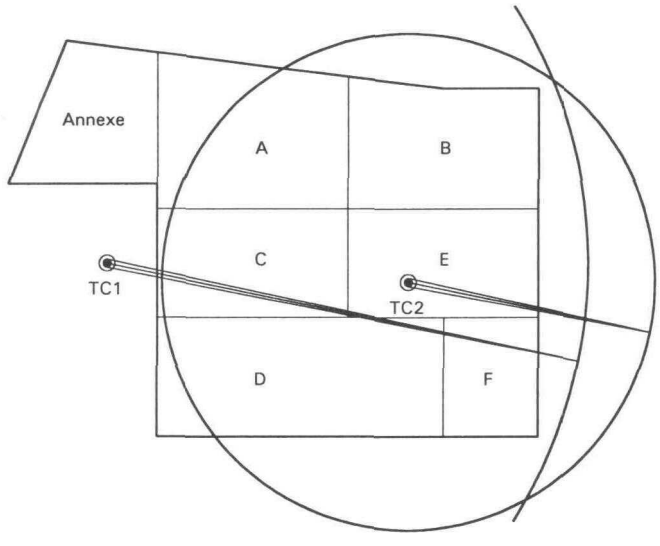

Figure 4.10 ***Plan of Senator House showing work zones***

One team was responsible for all the work within a particular zone, rather than adopting the traditional division of erection and bolting up teams. The emphasis on a single team objective, to achieve completion of one zone through collective responsibility, was a significant feature of the organisation of the site work. To ensure that the crane was as busy lifting as possible, one team would work on bolting up their zone while the second team was erecting an adjacent zone.

The sequence of erection used was basically as given in Section 4.1.4. A peak rate of 60 pieces per crane hook per 10 hour shift was achieved, with an average of 39 pieces. Historically, the average was 25 pieces per hook per shift[28] . This is an important performance indicator, because build time is heavily influenced by the number of members lifted into position in a given period, i.e. by how 'efficiently' the cranage is used. The number of pieces lifted per hour was maximised at Senator House by minimising the time spent slewing and hoisting.

Site meetings were held weekly between steelwork erection teams, project manager and director to discuss safety, the week's work programme and any problems.

Before each shift there was a meeting with each team to lay out the plan for the day and sort out any likely problems. A fabricator's representative visited the site daily to ensure good communication with the erectors.

The main contractor took a very positive leadership role in the management of the steelwork package, being concerned to know where every aspect of the process was at any time, and requiring full and honest reporting of progress. The steelwork contractors responded and raised their own levels of cooperation and coordination accordingly. Although this intensive management required considerable resources, and was therefore relatively expensive, it was cost effective in terms of the overall project.

The information given to the erection teams was simplified. Each piece of steel had a unique reference code related to section, level and piece number. An A3 drawing was prepared for each section showing the piece codes and location. Bolt requirements were shown adjacent to each section. In this way a single document served for erection, bolting and alignment, as well as quality control.

KEY POINTS - Senator House

Design criteria:

- Restricted height
- Minimum internal columns
- Grouped into work zones

Characteristics:

- Braced
- 6m UB primary beams
- 12m composite stub girder secondary beams

Performance:

- 6 weeks lead-in
- 72 t fabricated per week
- 15 weeks erection
- Average 39 pieces/hook/shift
- Peak 60 pieces/hook/shift
- 101 t erected per week
- 195 pieces per week
- 1231 m^2 of floor area per week