2.0

INFLUENCE OF LAYOUTS/SHAPES ON QUALITY AND CONSTRUCTABILITY

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Straightforward and uncomplicated design layouts and shapes facilitate ease of construction and maintenance, enhance productivity and lead to better quality workmanship. There is reduced need for closer co-ordination between trades and hence less dependency to achieve the desired build quality. This becomes more significant where mass production is involved. This chapter shows some examples of layouts, shapes and details and their influence on quality and constructability.

2.1 ADVANTAGES OF CLEAR-CUT LAYOUT

Layouts of regular shapes and without tight corners facilitate ease of construction. It is easier to achieve the desired workmanship quality in the finishing work.

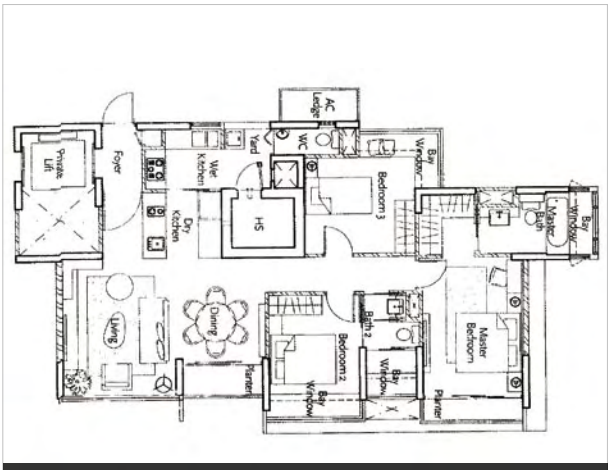

Fig. 2.1 - Regular layout with less tight-corners is easier to build and achieve quality.

2.1.1 Less corners and turns – Ease of architectural works

Layouts with standard room dimensions, less corners and turns facilitate execution of fine architectural finishing works like skirtings, painting, silicon seals, etc. The ease of working over straight surfaces results in consistent and better workmanship. The benefits are enhanced where there is repetition of similar design at every floor.

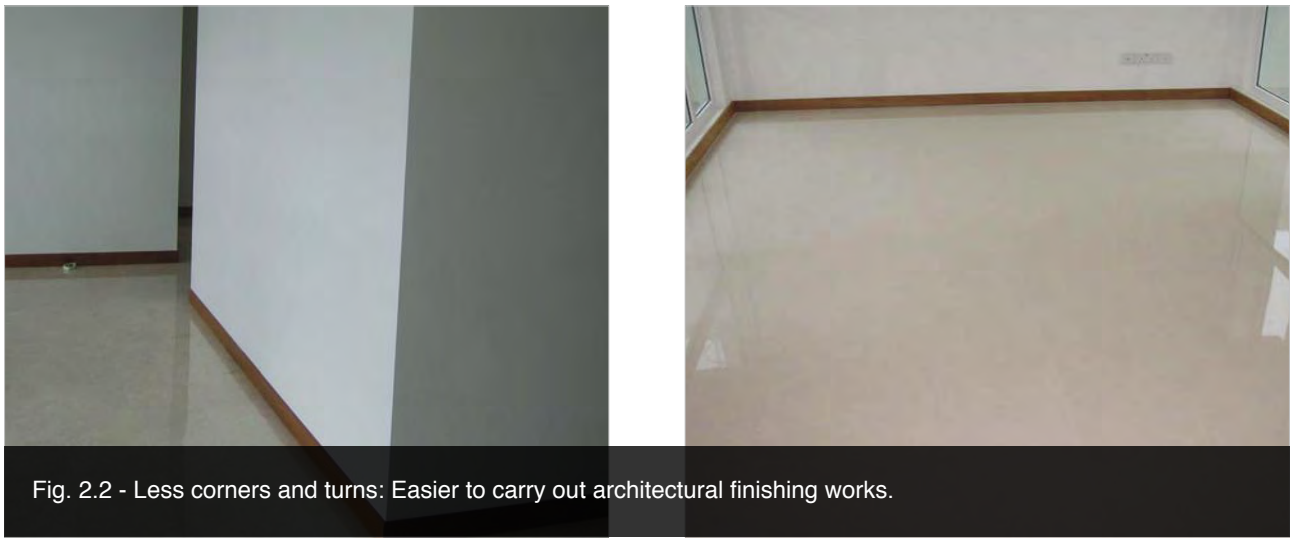

Fig. 2.2 - Less corners and turns: Easier to carry out architectural finishing works.

2.1.2 Regular shapes suit prefabricated components

Regular shapes that are used repeatedly generally facilitate prefabricated components like curtain-walls, full height windows and drywall partitions to be used. Such factory made components have better dimensional accuracy and assembly tolerances can be better controlled during erection. This leads to considerable reduction in site manpower and better quality output.

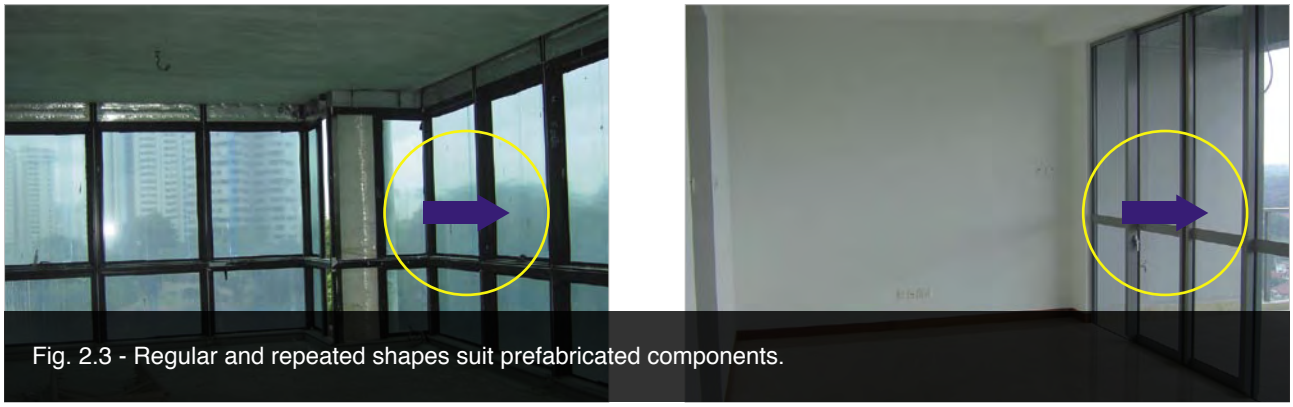

Fig. 2.3 - Regular and repeated shapes suit prefabricated components.

2.2 QUALITY AND CONSTRUCTABILITY CHALLENGES OF CREATIVE SHAPES AND LAYOUTS IN INTERNAL FINISHES

Creative layouts (see Fig. 2.4) generally have more turns and joints. It poses a greater challenge to complete the architectural works in internal finishes with the desired quality. More thought and attention need to be paid to interfacing details, where one trade interfaces with another e.g. joining of marble and timber floor, termination of wet and dry areas, etc. In addition, fine architectural works like skirting installation, silicone application to gaps and fillings, need to be executed carefully within the constraints of the unique shape or layout. In many cases, using traditional wet trades that involve intricate manual cutting of materials to suit the shape or layout may make it more difficult to achieve workmanship quality in addition to slowing the progress of the works.

Fig. 2.4 - Creative shapes and layouts : A challenge in finishing fine architectural details.

This has become more significant in residential properties where end-users' expectations are higher. Furthermore, more combination of material finishes and fittings are involved in residential buildings than commerical buildings. Hence clear-cut layouts, precise detailing and right sequence of execution are key factors to achieve desired quality in internal finishes.

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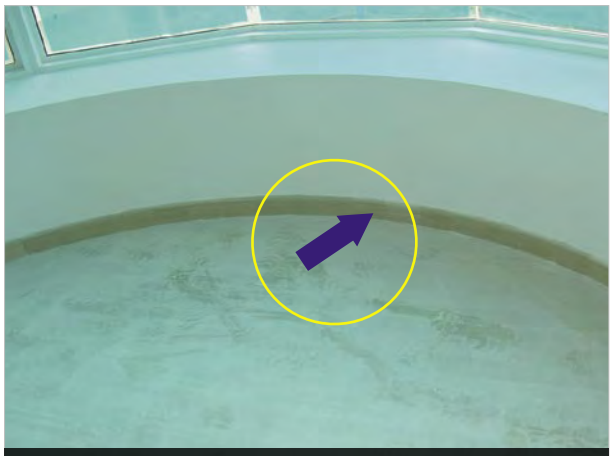

Fig. 2.5 - More attention/skill needed to get final shape and finish.

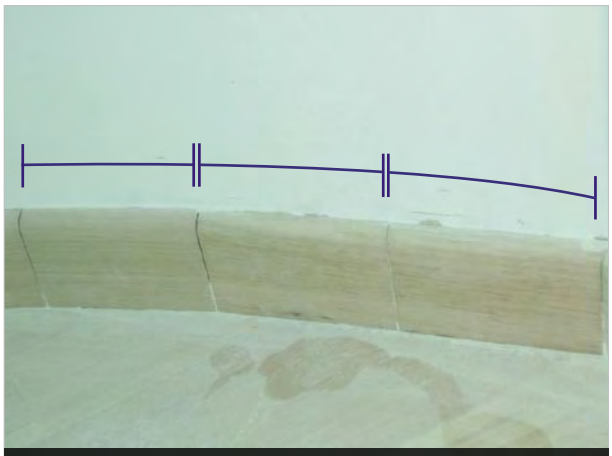

Fig. 2.6 - Too many skirting pieces/joints to get the required profile.

Fig. 2.7 - Small recesses: Difficult to carry out works like skirting, etc.

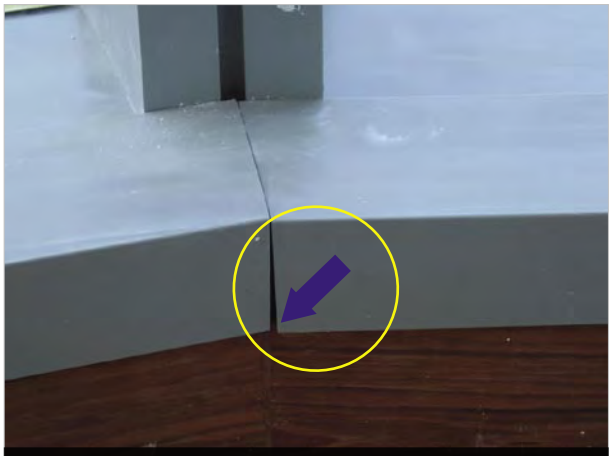

Fig. 2.8 - Protrusions in aluminium capping due to too many jointing segments.

Fig. 2.9 - Circular columns with masonry finishes require more preparation time.

Fig.2.10 - Skirting requires many small segments to form curve.

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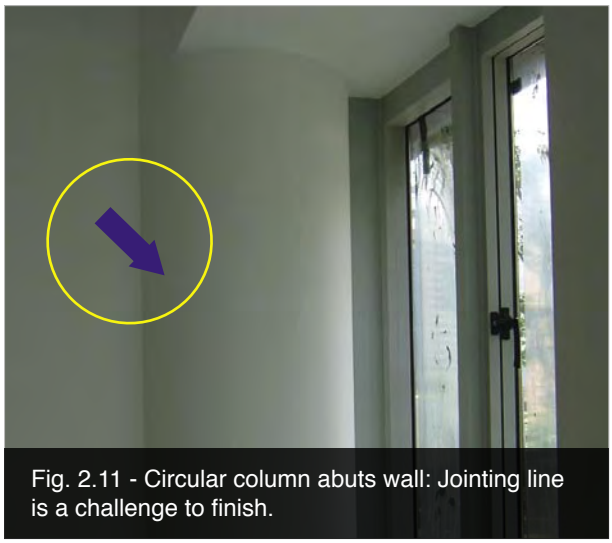

Fig. 2.11 - Circular column abuts wall: Jointing line is a challenge to finish.

Fig.2.12- Marble needs to be cut manually to suit profile.

The above examples are not meant to discourage professionals from creative designs. The emphasis here is to highlight the challenges posed by creative shapes and layouts and its impact on quality and constructability, particularly where a project has a large number of units which needs to be completed within a limited time frame. In addition, workers with the right training and skills are needed to carry out the fine architectural finishing works. Apart from employing workers with the appropriate skills, the builder also needs to carefully organize and sequence the works so as not to impact construction progress and its quality.