Tan Chiang Brother's Marble (S) Pte Ltd v Permasteelisa Pacific Holdings Ltd [2001] SGHC 386

Case Number : Suit 14/2001

Decision Date : 30 November 2001

Tribunal/Court : High Court

Coram : Lai Siu Chiu J

Counsel Name(s) : Ng Yuen (Ng & Koh) for the plaintiffs; Monica Neo (Chan Tan & Partners) for the defendants

Parties : Tan Chiang Brother's Marble (S) Pte Ltd — Permasteelisa Pacific Holdings Ltd

Introduction

1. The dispute in this case involved the cladding of marble and granite slabs on the walls of two (2) commercial buildings in Singapore namely Goldbell Tower located along Scotts Road and, Cuppage Centre located off Orchard Road.

The facts

2. Tan Chiang Brother's Marble (S) Pte Ltd (the plaintiffs) a Singapore company, are suppliers of marble/granite and other stones. Permasteelisa Pacific Holdings Ltd (the defendants) are a Singapore public company listed on the stock exchange. They are curtain wall specialists.

3. Sometime in 1996, the plaintiffs tendered for the external cladding works at the Cuppage Centre as a nominated subcontractor/supplier; they were unsuccessful. Instead, in October 1996, the defendants were appointed the nominated subcontractors by Sato Kogyo Company Ltd (Sato) to design, supply and install granite cladding to the entire external elevations of Cuppage Centre. The defendants in turn subcontracted to the plaintiffs the supply and installation of granite panels mounted on metal frame (the works) at the lump sum price of $3.2m. The supply and installation of secondary steelwork/frames to support the granite cladding was subcontracted by the defendants to another company (Yugyo Engineering Pte Ltd [Yugyo]). I should point out that Cuppage Centre was not/is not a new building but an old building which was extensively redeveloped and refurbished by its owners Cuppage Centre Pte Ltd (CC's owners); CC's owners had appointed Sato as their main contractors to carry out the redevelopment/refurbishment while P&T Consultants Pte Ltd (the architects/the consultants) were their architects.

4. The contract between the plaintiffs and the defendants was inter alia evidenced in the defendants' letter of intent dated 20 June 1997 (the letter of intent) which was countersigned by the plaintiffs on 20 October 1997. The letter of intent (see 2AB95-98) set out the scope of works, the terms and conditions and included the following extracts:

> Subject to your acceptance of these terms, we shall enter into a domestic subcontract in accordance generally with the terms and conditions of the Nominated Subcontract for the supply and installation of granite cladding, which you confirm you have full knowledge of by reason of your previous tender for these works.
>
> 2.0 Subcontract Sum
>
> The subcontract to be awarded shall be at the lump sum fixed price of S$3,200,000 (Singapore dollars: Three million two hundred thousand only) excluding GST .

> The Subcontract Sum is not subject to any fluctuation in the costs of labour, materials, plant, equipment, services etc that may arise during the period of completing the above works including any extension of time authorised under the conditions of subcontract. It is not subject to any re-measurement or adjustment except in the event of written variation instructions from us.

As part of their scope of works, the plaintiffs were required to install zincalum sheets supplied by the defendants and had to supply and install sealants and flashings (save for those between interfaces of granite and glazing subcontract works which would be carried out by Sato's window/glazing subcontractor) as well as clean the stoneworks. I shall refer to other parts of the letter of intent later; henceforth, I shall refer to the Cuppage Centre works as the CC project.

5. Arising out of the CC project (which was completed in March 1999), the plaintiffs made a claim for 46 items of variations works amounting to $408,902.44. Save for 33 items on which they admitted liability (but not quantum), the defendants ultimately disputed five (5) of the remaining items whilst eight (8) were eventually withdrawn by the plaintiffs. The plaintiffs on their part disputed the defendants' contention that they were nominated subcontractors of the defendants; they claimed they were only the latter's domestic subcontractors and hence were not bound by the terms applicable to nominated subcontractors of Sato. There was also a dispute concerning the actual scope of the plaintiffs' work; I shall return to the CC project later.

Goldbell Tower

6. The defendants were the domestic subcontractors of Sato for the external granite cladding works of Goldbell Tower (the Goldbell project). The defendants' scope of works was to supply and install granite cladding (by mechanical fixing) to the entire external elevations of Goldbell Tower and its two (2) columns, including steel frames, at the front entrance of the building. Having already established a relationship with the plaintiffs for the CC project (which was then in progress), the defendants also subcontracted the Goldbell project to the plaintiffs at the price of $180,000; the plaintiffs' scope of works was to provide the necessary labour, materials and equipment (including stainless steel and hot-dipped galvanised steelworks) for and, the installation of 2 units of granite elliptical feature columns. The terms and conditions of the plaintiffs' engagement are contained in:

(i) the plaintiffs' letter dated 15 September 1998 (see 2AB3-4);

(ii) the defendants' letter dated 12 October 1998 (see 2AB5) and

(iii) the plaintiffs' letter dated 24 November 1998 (see 2AB32-35).

I shall return to the above documents later.

7. The plaintiffs completed the Goldbell project in April 1999 but the defendants refused to pay their claim for the balance ($34,388.61) although it was not denied. The defendants complained that the plaintiffs' works were defective and caused them to have to compensate the owners Chua Chuan Leong Contractors Pte Ltd (Goldbell's owners) the sum of $116,604.20 in lieu of rectification of the plaintiffs' defective works. Hence, even after setting-off the sum of $34,388.61, the defendants contended that the plaintiffs still owed the defendants $82,215.59. I shall elaborate on these defects later.

The claim

8. In their (amended) statement of claim re-filed on the first day of trial, the plaintiffs added

another sum of $80,000 (for supply and installation of additional granite materials) to their claim of $408,902.44 (reduced from $570,469.08) for the CC project, claimed $34,388.61 for the Goldbell project and also had a claim for $19,434.65 for a third project (China Square) they had undertaken for the defendants. The defendants did not dispute the plaintiffs' claim for the China Square project. Consequently, there will be no further reference to that project henceforth, save in my decision. However, for the CC project, the defendants not only denied liability for part of the sums claimed but also counterclaimed various amounts against the plaintiffs. In relation to the Goldbell project, the defendants similarly counterclaimed the compensation sum they had paid to Goldbell's owners.

The evidence

9. According to their sales manager (Andy) Lee Jua Kim (Lee), the plaintiffs had been involved in other granite installation projects prior to these two (2) and hence had the necessary expertise. He cited as examples NTUC Income (at Tampines Point), Pacific-Tech Centre (at Bukit Merah) and PWC Building (at Boon Tat Street). In his written testimony, Lee (PW1) opined that granite being porous and a natural material, it would have variations in tonality, patterns and textures.

(a) CC project

(i) the plaintiffs' claim

10. In his written testimony, Lee had deposed that the plaintiffs had appointed a subcontractor to supply labour for the CC project. Although there was no cross-examination on this point, I wonder whether the plaintiffs' workmanship may not have been affected by this factor. Lee said that as the plaintiffs' granite panels had to be mounted onto the defendants' metal frames, the plaintiffs had to calculate the dimensions of the granite panels based on the defendants' metal frames. In this regard, the plaintiffs' draughtsman Cecil was stationed at the defendants' office in August 1999 to co-ordinate the dimensions. Lee conceded under cross-examination (N/E 51/52) that the plaintiffs' scope of works included design, besides fabrication and installation, as per the heading in the letter of intent .

11. Cross-examined, Lee also agreed that granite panel cladding for the CC project involved the following steps:

a. survey of the building structure to ensure that tolerance requirements are met followed by the setting out of reference lines;

b. Yugyo would fix secondary steel frames (including brackets, mullions and runners) to support the granite cladding;

c. the plaintiffs would align/level horizontal runners (provided by the defendants) to the correct level to receive/support their stonework;

d. the plaintiffs would secure the runners and install steel brackets;

e. granite panels would be hoisted into position and fixed onto the steel brackets;

f. the plaintiffs would use sealant to seal the gaps between granite panels to ensure water tightness.

The attached annexure A shows the various components that are involved in granite cladding. The

diagram is extracted from the affidavit evidence-in-chief of (Anthony) Koh She Shuan (Koh), the defendants' project manager for the CC project, taken from an 'as built' drawing; it shows a horizontal section through granite cladding, from the second to the tenth storeys.

12. Lee did not dispute that the plaintiffs were unable at the outset, to supply/cut the large granite panels (2.286m x 1.775m and 2.286m x 1.6m) they had specified in their tender; he explained it was because the plaintiffs' gang saws could not be pre-set to cater for such large pieces. The plaintiffs therefore proposed to half the panel sizes and join the 2 halves with a butt joint. The architects acceded to the plaintiffs' request but insisted that the pieces be joined by rabbet/rebated joints (which overlap) which are more expensive because they call for special tools, unlike the straight cuts for butt joints. Under **variation order no. 8**, the plaintiffs sought to charge for providing these rabbet joints; the defendants refused to pay the claim of $5,009. Cross-examined, Koh explained that butt joints were unacceptable as they would not keep water out, even with sealants.

13. Reynaldo Yatco (Reynaldo), the plaintiffs' project supervisor for the CC project, said rabbet joints were not necessary and were not within the plaintiffs' proposal to provide smaller panels of granite. Hence, they constituted a variation. Cross-examined, he agreed that if the architects had not acceded to the plaintiffs' request but had insisted on the contract sizes of panels being installed, the plaintiffs would have been exposed to liquidated damages if there was a delay in their obtaining the same and in completing the CC project.

14. Another disputed item was **variation order no. 12.** The plaintiffs claimed $40,000 for the additional work involved in welding horizontal steel brackets and installing flashings. In order to secure the runners under para 11(b) and (c) above, the plaintiffs were supposed to use 'tek screw'. In February 1998, the plaintiffs proposed using 'tack weld' instead. Apparently, it would be faster for the plaintiffs' workers to fix the runners using the tack weld method than by tek screw. The defendants refused payment on the basis that securing the runners was part of the plaintiffs' scope of works, they were therefore not entitled to additional payment for doing the work, whether by tek screw or tack weld.

15. Similarly, as regards flashings (thin sheets of metal bent to the required profile to ensure water tightness of the granite panels), the defendants contended it was part and parcel of the plaintiffs' scope of works under the letter of intent. Hence, the plaintiffs were not entitled to extra payment. Questioned by counsel for the plaintiffs, Koh denied he had instructed the plaintiffs (as Lee alleged), to install flashings over the entire wall surface of the building. Admittedly, the architects initially wanted flashings at every joint but, it was eventually agreed and Koh so instructed the plaintiffs, to install flashings at floor slab level (parameters only), not the entire walls. This was reflected in his fax to the plaintiffs dated 25 February 1998 (1AB425). Although he agreed that flashings at every floor slab was never contemplated in the contract (nor the quantities spelt out in the tender drawings), Koh asserted that it was orally agreed at site between the consultants and various parties, during the discussion on the mock-up; moreover, flashings cannot be identified at the tender stage. In any case, the requirement was in the specifications (referring to cl 6.17).

16. In his written testimony (para 38), Lee had contended that granite panels per se cannot prevent water seepage as it is a porous material. He interpreted the plaintiffs' responsibility to provide flashings as being limited to those areas where water was likely to saturate the granite panels namely, the granite panels just above the ground where rainwater/stagnant water may collect. He had also relied on the following extract from the letter of intent:

1.0.

e. Flashings and sealant between interface of granite and glazing subcontract works

Flashings and sealant at interfaces as above are excluded from your scope of works.

to say that flashings installation did not form part of the plaintiffs' tender documents. Questioned by the court, Lee said he understood the word *saturate* to mean full of water, i.e. when water from granite panels flow down all the way to the ground and form a pool.

17. Cross-examined, Lee agreed that other areas of water ingress would be joints between granite panels and window spaces. However, when counsel drew his attention to the following extract (see 2AB109W) from the main subcontract documents (pertaining to the supply and installation of external stonework)

6.17 Flashings

Where required to prevent leakage, flashings shall be either 0.0299" stainless steel or aluminium sheet with joints lapped, 150mm minimum sealed.

Lee then agreed that installation of flashings was part of the plaintiffs' scope of works. Even so, he claimed that when the plaintiffs initially pointed out to Koh that flashings were not part of the plaintiffs' scope of works, Koh had agreed but reverted later to say that Sato disagreed; Koh had then insisted that the plaintiffs carry out the work. Lee argued that granite being a porous material, the plaintiffs could not ensure 100% water tightness by applying sealant; hence the need for flashings. Lee also admitted that the plaintiffs were confused – they thought that their scope of works was either welding or flashings not both, until their mistake was pointed out to them in the defendants' letter dated 26 February 1998 (see 2AB160C). Lee also admitted that he had complained that the flashings his company had to provide were considerably more than what he had expected. Under cross-examination, Reynaldo agreed that there was a functional difference between sealants and flashings – the former was a waterproofing membrane to fill gaps between joints to stop water ingress whereas the latter was to channel water away from the building. Consequently, if there was a pool of water, flashings would not stop the water from entering the stone structure. In cross-examination however, Koh was told by counsel that the plaintiffs' contractual responsibility was to apply water repellent to the backs and sides of the granite slabs not sealant and, this would not prevent water ingress; Koh disagreed.

18. The plaintiffs' claim ($6,067.75) in **variation order no. 14** was for replacement of damaged granite pieces on the tenth storey, in accordance with the architect's instruction (in January 1998) to change the granite modules on the second storey. As the plaintiffs had by then fabricated the granite modules for the second storey, the architects instructed the plaintiffs to install those modules on the tenth storey. Counsel for the defendants took Lee through the steps involved in changing the granite modules on the second storey namely:

a. identifying the granite panels to be replaced:

b. removing/scrapping off the sealant between the panels ;

c. cutting across the joint and the dowel pin to break the contact;

d. removing the granite panel;

e. drilling deeper holes to insert new dowel pins;

f. removing and replacing the panel with a fresh piece;

g. allow the dowel pins to drop into the drilled holes;

h. applying epoxy to dowel pins and re-caulking new sealant to granite joints.

Lee and Reynaldo accepted the above method which was in fact proposed by the plaintiffs to and accepted by, the defendants (see 2AB186A-D).

19. The defendants did not dispute that the architect's instruction constituted a variation (for which they were liable) and which formed the subject of the plaintiffs' claim in **variation order no. 9** (in the amount of $18,393.22). However, they disputed the plaintiffs' entitlement to variation order no. 14 on the basis (according to Koh) that the defendants should not be made to pay for the cost of replacing existing granite panels damaged by the plaintiffs' workers while doing dismantling work, in the course of changing granite modules in compliance with variation order no. 9.

20. Lee defended variation claim no. 14 by saying that dismantling of and replacing old panels with, new pieces was a very difficult operation; there was no guarantee that existing pieces of granite would remain intact. There was also no economies of scale in terms of time, labour and costs, for the small area involved in replacement. He denied counsel's suggestion that damage to existing panels would not have occurred had the plaintiffs' workers been skilled in granite installation – it was not a question of skill (although he acknowledged it played a 'little' part) but more the fact there was only a margin of 1-2mm on each side of a panel for the plaintiffs' workmen to manoeuvre and dismantle.

21. Counsel for the defendants then drew Lee 's attention to the written testimony (para 18) of Reynaldo – Reynaldo had stated that there was a margin/tolerance of 8mm around each panel for workers to cut the pins and ease out the heavy panel pieces; this was also shown in the 'as-built' drawing (2AB668). Lee then corrected himself and said he meant the space below each panel was 1-2mm.

22. Cross-examined, Koh confirmed (based on his site inspection) that the tolerance between panels was 8mm (which was acceptable) and would be maintained regardless of size; he added that this allowance was set by the plaintiffs themselves. Yet, he had seen gaps of 9mm (based on his random measurements) *all over the place*. Koh pointed out that the defendants' complaint was not that the tolerances exceeded 8mm but, that the gaps were inconsistent; these had to be levelled.

23. In **variation order no. 31** the plaintiffs claimed $312.64 for replacement of granite panels due to multiple instructions. The defendants disclaimed liability on the ground that the damage resulted from the plaintiffs' workers failing to carry out the dismantling work with care. The defendants had also disputed liability for variation order no. 46 (for $957.18) which the plaintiffs said was for dismantling and reinstallation of granite base column at EL.1. Cross-examined, Lee agreed that variation order no. 46 was a duplicate of variation order no. 31 and the former was accordingly withdrawn. He further agreed that **variation order no. 46** was a duplication of the plaintiffs **variation order no. 44**. Similarly, the plaintiffs' claim in **variation order no. 26** was also withdrawn in the course of Lee's cross-examination.

(ii) the defendants' counterclaim

24. As stated earlier (para 8) the defendants had a counterclaim against the plaintiffs; I shall deal with each item of their counterclaim now.

(a) the plaintiffs' alleged failure to complete sealant works between external granite cladding and brick walls at the roof area

25. In his written testimony, Koh had complained that notwithstanding Sato's and the defendants' repeated requests to Reynaldo, the plaintiffs failed/refused to carry out the sealing works on the basis that it was excluded from their scope of works, to which Koh disagreed. Finally, Sato informed the defendants by letter dated 7 September 1998 that they would engage their own sealant specialist to carry out the sealing and would deduct the expenses thereof from the defendants' progress payment. Koh estimated that such works would have cost $4,260. In court, Lee maintained that sealing of the gaps was outside the scope of the plaintiffs' works. As this issue concerns the interpretation of the contractual obligations of the plaintiffs, it is for this court, not the parties, to decide whose view is correct.

(b) failure to clear debris after completion of cladding works

26. Koh also complained that Sato had informed the defendants (and other subcontractors) that the plaintiffs had failed on several occasions to clear the debris generated by their workers. Despite Koh's reminders to Reynaldo, the plaintiffs did not clear their debris. Finally, Sato informed the defendants by letter dated 1 July 1998 that all debris left behind by the plaintiffs' cladding works had to be cleared on a daily basis failing which they would deduct $20,000 for labour and costs for such removal. The defendants had notified the plaintiffs by fax on the same day they received Sato's letter despite which the plaintiffs failed to take any action. Consequently, the defendants claimed from the plaintiffs what Sato had deducted from the defendants' payments.

27. The plaintiffs did not deny it was within the scope of their duties to remove debris. Reynaldo (PW2) acknowledged that Koh had indeed instructed him to remove the debris and he had done so, contrary to what was alleged by Sato. He explained in his affidavit that in February 1999, the plaintiffs had approximately ten (10) crates of intact granite panels meant for future maintenance. These were placed at the multi-storey carpark area on the instructions of the main contractor. The crates were not debris and it was unreasonable of Sato/the defendants to require them to be removed and or to charge for their removal. In support of his contention, Reynaldo produced a fax from the defendants (Koh) dated 9 February 1999 (see 2AB246D) to the plaintiffs advising that the surplus granite panels had to be removed at the main contractor's request due to the impending hand-over of the building to the CC's owners. Lee relied on Reynaldo's testimony to contend that the plaintiffs removed debris every morning whereas Sato could have conducted spot-checks and saw fresh debris accumulated during the day. Further, other trades were also on site. Counsel for the defendants drew Reynaldo's attention to the fact that Sato's compliant was six (6) months before February 1999 and the storage of granite on site. He then admitted that there were several occasions when the plaintiffs did not remove debris.

(c) damage to scanclimber working platforms machines nos. 1 and 2.

28. The defendants alleged that sometime in June 1998, the plaintiffs damaged the scanclimber working platforms erected by Sato at the site. The purpose of the scanclimber was to transport the workers and/or the materials to the floor where the works were to be performed. Koh was informed by Sato's construction manager that the plaintiffs' workers did not operate the platform properly as which result it knocked a stationary lorry which was being used by Sato to remove debris. By way of proof, Sato furnished photographs (see 2AB454-457) to the defendants which showed that the base of the platform was badly dented. There followed a meeting (on 18 November 1998) between representatives of, Sato, the suppliers of the platform (EMT Engineering Pte Ltd), the defendants and the plaintiffs to inspect and verify the damage to the scanclimber. Ultimately, Sato in their letter

dated 18 November 1998 notified the defendants (who did not agree) that they would deduct $3,000 from the defendants' progress payment for the costs of replacement/repair of the damaged platform. The defendants in turn forwarded Sato's letter to the plaintiffs who did not respond. On 10 December 1998, the defendants received Sato's invoice for $3,090 (reflecting the $3,000 deduction plus 3% GST).

29. The plaintiffs denied liability for this claim; both Lee and Reynaldo contended that the platforms were used by contractors from other trades. Therefore, there was no certainty the plaintiffs caused the damage. Cross-examined however, Lee agreed that only one subcontractor was allowed to use the scanclimber at a particular time during the day and in the plaintiffs' case it was 4–6pm. Lee said he was 'not sure' when told by counsel that the damage was discovered after the plaintiffs had used the platform. Reynaldo on his part hazarded a guess (as he did not see) on how the lorry could have caused the damage, which speculation the court rejected. Although he was unaware that the damage had been discovered after the plaintiffs' allocated hours of usage, Reynaldo maintained his contention that the plaintiffs were not responsible.

(d) cost of replacement of 49 pieces of glazing panels due to sparks which emitted from the plaintiffs' welding works on steel frames used for granite cladding.

30. In June 1998, Koh was informed by Sato that sparks from the welding works on the steel frames had damaged some glazing panels; Koh in turn informed Reynaldo and Terence Chin (plaintiffs' subcontractor's representative). Koh received Sato's complaint dated 29 June 1998 (see 2AB249B) that a number of glazing panels had been damaged by welding sparks; Koh forwarded a copy of Sato's letter to the plaintiffs instructing them to take protective measures. On 15 December 1998, the defendants received a similar complaint from Sato. This time Koh forwarded copies of Sato's letter to the plaintiffs and Yugyo since both were working concurrently at the site. Koh then conducted a joint inspection on 18 December 1998 at which Reynaldo and Terence Chin were present together with representatives of Sato; Yugyo's representative was absent. Sato informed Koh that they would 'backcharge' to the defendants the costs of replacing the damaged panels; Koh in turn informed the plaintiffs' representatives that the defendants would recover from them and Yugyo the backcharges ($3,646.50 each). Lee claimed ignorance of this claim while Reynaldo contended that there was no evidence the plaintiffs' workers caused the damage and 'no basis' for the defendants' charge; he subsequently retracted this statement under cross-examination. Koh pointed out that the plaintiffs had to align the sub-frames prepared by Yugyo and secure the same with brackets. Consequently, contrary to their denial, the plaintiffs did welding works albeit on a much smaller scale than Yugyo. In any case, Yugyo was doing minimum welding at the material time.

(e) cost of replacing damaged window sills

31. The defendants alleged that in the course of their cladding works, the plaintiffs damaged sills of windows installed by Sato's aluminium subcontractors; Sato had complained in October 1998 that workers of the plaintiffs' subcontractors had used the windows as an access and working platform. Koh said he told the plaintiffs (through Reynaldo) and Yugyo on numerous occasions to warn their respective workers not to use the window sills in the manner alleged by Sato. Koh arranged for a joint inspection to verify Sato's complaint; he noted that the window sills bore permanent scratch marks likely to have been caused by granite stones. Koh concluded that the damage was unlikely to have been caused by Yugyo as by then, they had completed the steel frameworks and were only doing minor touch-ups. Accordingly, when Sato informed the defendants that they would backcharge the defendants $7,293/- for the damaged windows, Koh informed the plaintiffs via fax on 10 November 1998 (see 2AB452A) that the defendants would recover the sum from the plaintiffs; there was no response from the plaintiffs. Notwithstanding that the plaintiffs were more likely to have caused the

damage, the defendants apportioned the backcharges ($7,293) equally between the plaintiffs and Yugyo. Lee was not cross-examined at all as again he claimed ignorance of this item while Reynaldo contended there was no evidence the plaintiffs' workers caused the damage.

(f) supply of one unit of gondola and one unit of forklift

32. The defendants alleged that in or about April 1998, they had rented and supplied at the plaintiffs' request, a gondola and forklift for the latter's use in carrying out rectification works. The defendants incurred rental charges of $987 and $1,500 respectively for the forklift and gondola, which they required the plaintiffs to reimburse. Lee admitted he asked for the gondola but not of Koh; he said he was unaware of the charge. Reynaldo acknowledged the plaintiffs were liable for the forklift charge but complained that the gondola charge was excessive as he noted that the defendants had incurred $1,545 in procuring the gondola (this was before Koh reduced the amount from $2,000 to $1,500 in his oral testimony).

(g) providing a site-office to the plaintiffs

33. Under their scope of works, the plaintiffs were required to have a site office; indeed they had made a provision of $5,000/- for temporary office in their quotation date 4 September 1997. Koh deposed that in October 1997, Reynaldo and Terence Chin approached him for assistance to set up a temporary site office. Koh obliged by partitioning off and allotting to the plaintiffs some of the space meant for the defendants' own site office; the defendants billed the plaintiffs $4,000 for the same, based on half the costs of setting up the site office. Lee however claimed that the plaintiffs could not erect a site office without the defendants' instructions; he was 'not sure' of this claim whilst Reynaldo complained that it was unfair of the defendants to charge - Sato had demarcated a space for each nominated subcontractor, including the defendants. The defendants partitioned their space into two (2) and gave one side to the plaintiffs to occupy but, provided no furniture or fittings; the plaintiffs brought in their own table, filing cabinets, chair and air-conditioner. Cross-examined, Koh admitted Yugyo also shared the defendants' site office; however Yugyo hardly used it save to keep some tools there.

(h) providing draughtsmen and technical staff to the plaintiffs for preparation of shop drawings

34. Clause 11 of the letter of intent stated:

> <u>Shop drawings/calculations</u>
>
> You will provide a schedule/showing your proposed dates for submission of shop drawings and structural calculations (PE endorsed) to allow progress/completion as required, within seven (7) days of the date of this letter. If we are requested by you to provide drafting assistance this may be provided by us at an agreed amount of $10,000 per calendar month per person.

Koh understood from the defendants' construction manager (Robert Hill) that the plaintiffs' project manager Josiah Ng had requested for assistance in the preparation of shop drawings. The defendants invoiced the plaintiffs $10,000 on 31 December 1997 for such services. In addition, the plaintiffs requested the defendants in July 1997 for soft copies of architectural tender drawings to enable them to expedite preparation of the shop drawings. The defendants provided the plaintiffs with 5 diskettes containing 49 drawings, for which they billed the plaintiffs $1,960 ($40 x 49). Questioned, Lee said it was 'not fair' of the defendants to levy this charge as the plaintiffs were actually assisting the defendants to do the shop drawings when the design of the subframe was to be done by the

defendants. He maintained this stand notwithstanding that the plaintiffs' quotation dated 4 September 1997 had a provision of $35,000 for shop drawings. It was pointed out by counsel for the defendants that the plaintiffs had never disputed these charges. Reynaldo on the other hand only disputed the charge for tender drawings, contending that it was double charging as it would/should have been covered in the drafting fee of $10,000. Under cross-examination however, Reynaldo admitted that there was a difference between shop and tender drawings.

(i) supply of two (2) sets of mobile scaffolding

35. Koh was informed by Sato in October 1998 that the plaintiffs had requested Sato to provide mobile scaffolding to enable the plaintiffs to carry out rectification works; he verified the plaintiffs' request with Reynaldo. Sato provided the scaffolding to the plaintiffs based on a quotation from their supplier (Wee Chwee Huat Scaffolding & Construction Pte Ltd) of $1,300 which sum they subsequently charged to the defendants; Koh notified Reynaldo that the defendants would backcharge the amount to the plaintiffs. Accordingly, the defendants contended, they were entitled to be reimbursed the amount by the plaintiffs. Lee was unable to assist the court on this item whilst Reynaldo did not mention it at all.

36. It is pertinent to note that in their closing submissions (see para 5), the plaintiffs accepted the following items (totalling $12,287) of the defendants' counterclaim:

(i) provision of forklift — $987;

(ii) provision of mobile scaffolding — $1,300;

(iii) charges for assistance in preparation of shop drawings — $10,000

37. Another area of dispute in the CC project concerned the grand staircase coping. The plaintiffs' initial installation of segmented panels was rejected by the architects at a joint inspection held on 21 July 1998; the plaintiffs were asked to change to three-dimensional warped coping panels. The plaintiffs' coping work was found to be unsatisfactory because of improper curvature. The plaintiffs defended their workmanship on the basis that it was common knowledge such panels are difficult to produce and hence a perfect fit cannot be guaranteed, as was pointed out in their letter dated 23 July 1998 to the defendants (see 1AB215). Koh did not accept this explanation maintaining that the coping can be moulded, cut and assembled on site for a perfect fit. I should add however (as was pointed out in the plaintiffs' final submissions), that this claim/complaint was not part of the defendants' pleaded case; neither was it mentioned in the written testimony of their witnesses Koh and Lim Kian Seng.

38. Lim Kian Seng (Lim) was/is the defendants' contracts manager. In his written testimony, he confirmed his company admitted liability (but disputed the quantum claimed by the plaintiffs) for 33 variation orders, for which he set out his own quantification. Lim (DW3) deposed it was his practice to obtain feedback from Koh on whether the plaintiffs had done and completed the work set out in the variation claims they submitted. He would then countercheck the variation works claimed against the bills of quantities and contract drawings to determine whether the same fell within the plaintiffs' scope of works. If he found that the claims were outside the original scope of works, he would instruct the defendants' quantity surveyor (Joey Chua) to assess the value of the work done. Upon receipt of the quantity surveyor's valuations, Lim would again check the quantities against the contract/as-built drawings after which he would process the plaintiffs' variation orders based on rates in the bills of quantities as a guide. If there were no exact items in the bills of quantities relating to the plaintiffs' claims, he would extrapolate the rates for similar items found in the bills of quantities.

For works which were not similar to any items listed in the bills of quantities, Lim would make a fair valuation based on prevailing market rates, after checking with suppliers and other subcontractors. For other works claimed by the plaintiffs where measurements were impossible, Lim would price the works based on day-work basis, on actual materials used and time spent, adjusting for tools, supervision, overheads and profit for the plaintiffs.

39. I had indicated to counsel at the commencement of trial, that I would only determine liability and not quantum, for the parties' claim and counterclaim respectively. Consequently, the variation claims on which the defendants admitted liability but not quantum, will be assessed by the Registrar at a later stage together with variation orders nos. 8, 10, 12, 14 and 31 in the event I find for the plaintiffs. Variation claim no. 46 is deemed withdrawn in the light of Lee's admission (N/E 102) that it was a duplication of variation claim no. 44. I note from para 29 of Lim's affidavit that the defendants dispute liability for variation orders nos. 8, 10, 12, 14, 26, 31 and 46 and, in para 30 he also disputes the quantum for variation orders 8, 10 and 12 but not variation orders nos. 14, 26, 31 and 46; the latter three (3) items (excluding item 46) therefore need not be assessed in the event I accept them.

40. Variation orders nos. 10 ($146,566) and 26 ($15,000) are no longer in issue as they were withdrawn together with 31 and 46 while variation order no. 9 ($80,000) was added, on the first day of trial. Variation order no. 9 was the plaintiffs' claim for supplying additional granite stone at deck 2A; the defendants admitted liability (see para 11A) for this claim in their amended defence and counterclaim. Consequently, this item will also go for assessment later. To pre-empt any subsequent dispute between the parties, I wish to make it clear that the evidence adduced at this trial will form part of the evidence for the assessment, with liberty to the parties to adduce further evidence before the Registrar on the issue of quantum only. Further, neither party will be allowed to call further evidence relating to liability let alone contradict whatever evidence that has already been presented.

41. In the light of my direction, there is no necessity to dwell at length on the testimony of Lim. He was cross-examined at some length on the backcharges against the plaintiffs which formed the basis of some items of the defendants' counterclaim. Where the defendants backcharged the plaintiffs as well as Yugyo for those items which Sato had charged to the defendants, Lim clarified that the defendants eventually reached a commercial settlement with Yugyo – the company agreed to reduce their variation claims (where accepted by the defendants) to take into account the defendants' backcharges. On the issue of variation claims, Lim's testimony was not particularly helpful as he was not the person on site at either the CC or the Goldbell sites; his knowledge of events mainly came from Koh.

42. Loke Pak Chee (Loke) was an independent quantity surveyor engaged by the defendants to assess the plaintiffs' variation claims. Like Lim, his testimony is not material vis-a-vis liability; I shall return to Loke's testimony in my findings.

Goldbell Tower

43. The plaintiffs' project supervisor for the Goldbell project was not Reynaldo but another Filipino called Ric Sabalboro (Sabalboro). He described the Goldbell project as unique and difficult because it called for cladding of elliptical columns such that the front elevation was curved on the horizontal plane and tapered from top to bottom with the result that no two (2) panels on the front elevation would have the same dimensions, curvature or cross-section. As a result, the panels could not be switched around after polishing to mix and match the colour tones that became visible only after the polishing process, echoing Lee's testimony on the natural defects inherent in granite in terms of colour tonality.

44. Sabalboro (PW3) in his written testimony stated that granite panels are usually cut by gang saws which have been pre-set to a certain depth, to ensure there is a consistency in the depth/thickness of the panels, so that the variation is no more than 1-2mm. He opined that industry standard recognised the fact that granite and other natural stones are coarse materials which cannot be cut to exact accuracy, more so where the gang saw cannot be pre-set for cutting, due to the columns being tapering and elliptical. Sabalboro claimed that the difficulties inherent in the job could be seen in the fact that the defendants turned to the plaintiffs who had the necessary gang saws to cut the individual panels in Singapore, after the defendants' other suppliers could not supply and install (this was disputed by the defendants). It was further seen in the fact that the plaintiffs were only ready to cut and fabricate the panels in early 1999. He referred to the plaintiffs' letters dated 15 September 1998 and 1 February 1999 where his company had cautioned the defendants on the expected variations in tonality of colours and texture. Accordingly (he asserted), the defendants' complaints in their letters dated 17 March, 2 April and 21 May 1999 were misconceived. When the plaintiffs pointed out this fact to the defendants, the latter then reverted to complain about lippages (edges of adjoining panels).

45. Sabalboro claimed he used to climb the scaffolding during the Goldbell project to inspect the installed panels on the columns. He noted that the lippages ranged between 2mm and 10mm with the majority being in the range 4-6mm. As the defendants did not complain about the lippages at all for the duration of the contract, it showed that the lippages were minor and not noticeable. He relied on Lee's testimony that the lippages were within industry standards (based on the Design Manual of Marble Institute of America [the Manual]) and also on the defendants' letter dated 12 October 1999 to Goldbell's owners (see 2AB86). The fact that Goldbell's owners had not removed the panels which lippages were the subject of complaint proved that the lippages were acceptable. It was only after the project had been completed that Goldbell's owners installed lights to shine onto the columns. The lighting caused a slight shadow to be visible at some joints between the panels. Sabalboro opined that this was not an acceptable method of testing for lippages.

46. Counsel for the defendants pointed out to Sabalboro that according to the plaintiffs' own schedule of works, the production time for the granite panels was longer than the installation process, proving that the former was more difficult than the latter. Indeed, the plaintiffs' letter dated 1 February 1999 (2AB42) to the defendants stated that the former would only begin installation on 24 February 1999. Counsel further referred Sabalboro to the plaintiffs' initial quotation dated 15 July 1998, providing $150,000 for the supply and delivery, which was subsequently increased to $180,000 (accepted by the defendants) for supply, delivery and installation, suggesting that the increase of $30,000 was for installation. Sabalboro agreed with her that the defendants' complaints (unevenness of the panels and their not being flushed) had nothing to do with whether the panels were curved or flat. Although he cited the Manual, Sabalboro was unable to pinpoint the exact provision therein relating to curved panels. Like Lee, he had relied on item 3.01 which sets out the permitted tolerance (30mm) for thickness of granite, not alignment of granite nor gaps or lippages. Counsel suggested to Sabalboro (who agreed) that it was not possible for anyone on the scaffolding to have had a good view of the two (2) columns in their entirety, let alone notice the lippages while scaffolding was in place.

47. Lee on his part acknowledged that he had cautioned the defendants in writing about the natural differences in tonality of granite only in February 1999, <u>after</u> the plaintiffs had started work in November 1998; by then Goldbell's owners, their consultants and the defendants had already complained about the vast differences in tonality. By all accounts, the colour differences affected more than the 4-5 granite pieces Lee estimated (see photograph 1AB94B). Indeed, in the defendants' letter to Goldbell's owners, 66 pieces of panels appeared to have been rejected due to tonal differences. Lee however claimed to have verbally informed the defendants that the work was difficult

at the time the plaintiffs were approached to do the job. He agreed that the defendants' letter dated 12 October 1998 (para 12) had stipulated that tonality, veining and uniformity in colours were subject to the architects' satisfaction. However, he also claimed that the defendants knew about the tonality differences beforehand as, their representatives as well as those of the architects and Goldbell's owners had inspected the granite at the plaintiffs' factory, before the panels were delivered to site. Lee admitted that due to the stand he took that the tonality differences is a natural phenomenon of granite, the plaintiffs did not take any steps to rectify or replace any of the panels installed at Goldbell Tower, despite repeated reminders from the defendants between March and May 1999. Instead, on 30 August 1999 (2AB84), the plaintiffs demanded $704,220.33 from the defendants in response to which, the defendants in their letter dated 3 September 1999 (2AB85) denied liability and, repeated their request that the plaintiffs carry out rectification works.

48. In defence of the lippages which the defendants found to be unsatisfactory, Lee had also relied on another guideline besides the Manual to support his assertion that lippages may have (acceptable) differences in level of up to 12mm. He referred counsel (for the defendants) to the Building Control Authority's Guide on Good Industry Practices relating to Marble and Granite Finishes (Guide); however it was pointed out to him that the Guide (D1) provided for interior not exterior, installation of granite panels.

The findings

(i) CC project

49. I shall refer to the variation claims of the plaintiffs separately in my findings. Before that however, I need to side-track and refer to the defendants' final submissions (paras 16 and 95) where they said the plaintiffs' variation claims were also disputed because the same failed to omit and deduct therefrom, two (2) items of work not done by the plaintiffs namely;

(i) granite cladding of four (4) metal doors;

(ii) granite cladding to the wall of the winding staircase.

which Lee and Reynaldo had admitted were not done. In their submissions, the plaintiffs objected to these two omissions being considered arguing they were not pleaded by the defendants in either the Defence and Counterclaim or in their two (2) sets of Further and Better Particulars. There was also no mention of the items in the affidavit evidence of the defendants' witnesses nor was oral evidence adduced from any witness called by either party. I accept the plaintiffs' objections – the defendants are bound by their pleadings and are therefore precluded from using these omissions to off-set payments admitted to be due to the plaintiffs.

50. I do accept however the defendants' submission that the plaintiffs have not proven their pleaded case that a letter dated 1 September 1997 formed part of the contract documents for the CC project. The letter was not produced in court by the plaintiffs; indeed I note that none of their witnesses (unlike the defendants' witnesses) referred to this letter or to any of the other documents the plaintiffs claimed to form the contract between the parties.

51. It is common ground between the parties that the letter of intent sets out the scope of the plaintiffs' works, read with the plaintiffs' letter dated 4 September 1997 and the defendants' letter dated 7 October 1997. What is disputed between the parties however is the plaintiffs' obligation pursuant to the letter of intent, under these words

'enter into a domestic subcontract in accordance generally with the terms and conditions of the Nominated Subcontract for the Supply and Installation of Granite Cladding which you confirm you have full knowledge of by reason of your previous tender for these works.

Lee said he/the plaintiffs had understood those words to refer to the nominated subcontract documents applicable to their previous unsuccessful tender for the CC project. The defendants on the other hand asserted that the reference can only be to the defendants' own subcontract documents as the nominated subcontractor of Sato. In their closing submissions, the defendants reinforced their arguments by referring to the written and oral testimony (under cross-examination) of Lee wherein he relied on the defendants' subcontract with Sato as well as the specifications and tender drawings, which were part and parcel of the defendants' subcontract.

52. I am in full agreement with the defendants on their contention. I cannot accept the plaintiffs' argument as it would simply make no commercial sense for the defendants to rely on a document which did not see the light of day. Surely the governing contract between the parties must be a contractual document. In reality, what the defendants did was to further subcontract out their own contract from Sato on a back-to-back basis, to the plaintiffs and Yugyo respectively. Hence, the applicable terms must be those found in the defendants' nominated subcontract.

53. Having disposed off the dispute as to the applicable contract between the parties, I turn my attention next to the other dispute concerning sealant works. This was referred to in para 24, in connection with the defendants' counterclaim. To recapitulate, the plaintiffs contended that sealing (between granite panels and the walls at the back of the panels) was outside their scope of works whilst the defendants contended otherwise.

54. The plaintiffs relied on the testimony of Koh (N/E 497) where he had admitted that the tender drawings for the roof garden did not show sealant was required between granite panels and walls. The drawings showed that Sato was required to install bituminous/rubber waterproofing membrane in those areas; Sato omitted the work prompting the architects to require the gaps to be sealed. It was unreasonable that the main contractor should enjoy savings in such omission and expect the plaintiffs to absorb the cost of supplying and applying sealant. The defendants on the other hand argued that it was not open to the plaintiffs to rely on Sato's omission as an excuse for not discharging their own obligation. They relied instead on Lee's testimony (N/E 81) that the plaintiffs were obliged to ensure water tightness of the cladding system.

55. Having reviewed the documentation, it is clear that there was no specific provision relating to the plaintiffs' obligation to apply sealant behind the granite panels. The defendants' reliance on Lee's testimony is misconceived; that was in relation to flashings, the subject of variation claim no. 12 for $40,000, not this area of work. Consequently, this item of the defendants' counterclaim is rejected. The defendants should have requested the consultants for an architect's instruction to carry out work resulting from Sato's omission; in turn they should have allowed the plaintiffs to claim the work as a variation.

The plaintiffs' variation claims

(i) variation order no. 8

56. I move now to the various items claimed by the plaintiffs starting with **variation order no. 8**, for the provision of rabbet joints. It was in evidence that the rabbet joints were requested by the architects resulting from the concession granted to the plaintiffs, to be allowed to supply granite pieces in half the sizes called for under the contract. For aesthetic or other reasons, the architects

wanted rabbet instead of butt joints. In their closing submissions (para 20.6) the plaintiffs sought to rely on the Singapore Institute of Architects (SIA) main contract which they contended (by implication) formed part of the contract documents. The plaintiffs argued that the architects did not have power under clause 1(3) of the SIA which states:

> …….the Architect shall have power to give directions as….(c) to vary the permanent works ……at the request of the contractor so as to assist him in overcoming difficulties or in avoiding excessive costs during construction….

to impose the condition of changing butt to rabbet joints. Even if the SIA contract applied (which the defendants denied and I agree it does not), there was no evidence adduced from any of the plaintiffs' witnesses that the change to smaller granite pieces was due to cost considerations. Instead, it was Lee's and Reynaldo's testimony that the plaintiffs' gang saws could not cut the granite pieces to contract size; the architects made a concession to assist the plaintiffs to overcome difficulties. If the architects had insisted on strict compliance with the contract (which they were entitled to), it could have resulted in a delay in the plaintiffs' supply and completion of the CC project and exposed them to the likelihood of liquidated damages. Having been saved from the possibility of paying liquidated damages, it does not lie in the mouth of the plaintiffs to say they should be paid extra for providing (more expensive) rabbet rather than butt joints. Consequently, the plaintiffs are not entitled to their variation order no. 8 (whether for $5,009 or for any other sum).

Variation order no. 12

57. The plaintiffs had claimed $40,000 for installing flashings; earlier the defendants (Koh) misunderstood their claim to include welding works (for change of method for fixing the runners from tek screw to tack weld). In re-examination (N/E 251), Lee clarified that the claim was confined to flashings. The plaintiffs submitted that their contractual responsibility was only to ensure that joints (not the whole building) between granite panels were watertight, by the application of silicone material, as per the tender specifications and drawings. They pointed out that flashings were specifically excluded, relying on clause 1.0 of the letter of intent (para 16 *supra*). The defendants on the other hand, relied on clause 6.17 of the defendants' subcontract to say it was included in the plaintiffs' scope of works. I note from the common testimony of Lee and Reynaldo that they did not categorically deny that the plaintiffs were to provide flashings – they misunderstand the plaintiffs' contractual obligations and thought they only needed to provide flashings on the ground floor areas where water would saturate and form pools. Koh on the other hand had testified that flashings were required at floor slab areas.

58. I am unable to comprehend how the plaintiffs' two witnesses arrived at the peculiar interpretation they did on where they thought flashings were to be installed. If they made a mistake in their understanding of the plaintiffs' obligations, it is the plaintiffs who have to bear the consequences not the defendants, bearing in mind Lee's admission that he had underestimated the quantity of flashings the plaintiffs were to provide. The plaintiffs' reliance on clause 1.0.e (at 2AB96) is misconceived – I understand that clause to mean the plaintiffs are not responsible for flashings and sealant works between granite panels and windows because of the reference to *glazing subcontract works*. Accordingly, the plaintiffs are not entitled to variation claim no. 12.

Variation claims no. 14 and 31

59. I shall consider both these claims together. Earlier (para 10) I had commented on the fact that the plaintiffs had themselves obtained labour for the CC project from a subcontractor. It was also in evidence that it was the plaintiffs who had provided the defendants with the method

statement (at 2AB186B-E) for replacement of granite panels. Consequently, although Lee claimed that the plaintiffs had considerable expertise in granite installation, I doubt that the same can be said of their subcontracted workers. If indeed the plaintiffs were experienced in granite works, their workers should have been skilled enough to dismantle pieces of granite and reinstall/replace them (variation claim no 14) without damaging those pieces or neighbouring panels. Both these claims are therefore dismissed.

The defendants' counterclaim

60. Having dealt with the plaintiffs' variation claims, I move next to the defendants' counterclaim, excluding the claim for sealant works which has already been disposed off (para 55).

Clearing of debris

61. I am satisfied that the defendants have proved this item of claim on a balance of probabilities. They were able to adduce corroborative evidence by way of letters of complaint from Sato against which the plaintiffs could only proffer bare denials from Lee and Reynaldo. I note that Lee only visited the site once a week for ½ to one hour (N/E 112) and in Reynaldo's case, although he was the plaintiffs' site supervisor for the CC project, it was the plaintiffs' labour subcontractor's representative Terence Chin who should have testified as to actual conditions on site, but he was not called. It is naïve of Lee and Reynaldo to expect the court to believe that Sato could not tell the difference between surplus granite panels stored in the carpark for future maintenance purposes and construction rubbish.

Damage to scanclimber working platforms

62. I am also allowing this claim on the basis that the plaintiffs did not/could not challenge the defendants' testimony that the damage was discovered after the plaintiffs' usage (4-6pm) of the same; Reynaldo's denials were not convincing and Lee had no knowledge of the matter.

Replacement of 49 pieces of glazing panels due to welding sparks

63. The plaintiffs are liable for this claim. The defendants were more than fair in apportioning liability for this claim equally between the plaintiffs and Yugyo, even though Koh was of the view that the plaintiffs were more likely to have caused the damage as Yugyo was doing minimal welding at the material time. The defendants are entitled to set-off against the plaintiffs' claims half of the sum backcharged by Sato.

Cost of replacing damaged window sills

64. Based on the testimony of Koh as set out briefly in para 31 above, I am also allowing this claim, which should be half of the backcharges imposed by Sato on the defendants.

Supply of one unit of gondola

65. The defendants' claim ($987) for supplying a forklift is no longer challenged by the plaintiffs. In their closing submissions (para 5) they did not dispute liability for this claim (probably due to Lee's admission that he made the request for a gondola) nor the claim of $1,300 for mobile scaffolding. Reynaldo's only complaint of the gondola charge was that the original sum ($2,000) was excessive, before Koh reduced it to $1,500 (excluding GST) in his oral testimony. The claim of $1,545 is allowed.

Provision of a site office

66. Apart from Reynaldo's complaint that it was unfair of the defendants to charge the plaintiffs $4,000 for demarcating and merely giving the plaintiffs a bare office, the plaintiffs presented no cogent reasons why the defendants were not entitled to this charge. Accordingly this claim is allowed; the plaintiffs themselves had made provision for a site office in their quotation. I note that at the submissions stage, the defendants produced their purchase order (no. 18103) dated 13 October 1997 (as a follow-up to cross-examination of Koh) to Tian Swee Engineering Construction Pte Ltd evidencing the cost of $7,500 for construction of a site office. The defendants are entitled to recover half ($3,750) this amount and not $5,000, from the plaintiffs.

Preparation of shop drawings and charge for tender drawings

67. The defendants' claim for $10,000 for assisting the plaintiffs to prepare the shop drawings is no longer disputed, according to para 5 of the plaintiffs' closing submissions. As for the tender drawings, I do not see why the defendants should not be entitled to charge the plaintiffs for providing a set of tender drawings, which are separate and different from, the shop drawings; the claim for $1,960 is accordingly allowed.

68. As I had indicated (in para 42) I would, I now turn to the testimony of Loke. Counsel for the plaintiffs had started his cross-examination by inquiring of Loke (DW2) whether Loke considered himself an expert on construction, curtain wall works and granite works (installation and fabrication). Such questions were unnecessary having regard to s 49 of the Evidence Act (Cap 97) which states:

> (1) When the court has to form an opinion upon a point of foreign law or of science or art, or as to the identity or genuineness of handwriting or finger impressions, the opinions upon that point of persons specially skilled in such foreign law, science or art, or in questions as to the identity or genuineness of handwriting or finger impressions, are relevant facts.
>
> (2) Such persons are called experts.

69. An extract from the commentary in *Sarkar on Evidence* (15th ed 1999 at p 868) on s 45 of the Indian Evidence Act (which is *in pari materia* with our s 47) states (with particular reference to the underlined words):-

> ….It will be seen that this section speaks of expert evidence on matters of *'science or art'*, and does not specifically mention '*trade*' or '*skill*'. The word '*science*' is a broad term and it is not always easy to determine what is or is not a subject of scientific inquiry. The English and American authorities on the subject, show that the tendency is to widen the scope of the term *'science or art'* as much as possible. The decisions show that expert evidence has frequently been admitted on matters not of pure science or higher science or pure art. There is no reason to suppose that the Legislature intended to make a departure from the English law on the subject. In English and American text-books, the words used are *'science, art and trade'* or '*skill*' and under this phrase is included the knowledge, evidence or skill of medical men, engineers, artists, surveyors, valuers, accountants, engravers, naturalists, mechanics, artisans, masons, blacksmiths, shopkeepers, farmers, railroadmen, etc. It is therefore submitted that the words 'science or art' in this section are to be widely construed. The word 'skill' has however been used in defining the term 'expert' and this may be taken to include skill in trade or any business or employment. In short the phrase 'science or art' is not to be construed in a narrow sense. All subjects in which peculiar skill and judgment or experience or special study is necessary to the formation of an opinion, come within the term

.....

The words 'science or art' include all subjects on which a course of special study or experience is necessary to the formation of an opinion (Steph Dig Art 49) and it is not necessary 'that a speciality to enable one of its practitioners to be examined as an expert, should involve abstruse scientific conditions' [Story v Maclay 3 Mon (Ky) 480, 483].....

70. *Halsbury's Laws of England* (4th ed vol. 17 p 61 para 83) has this to say on the opinion of experts:

Subjects of expert evidence.

Courts frequently have to decide upon matters requiring specialised knowledge and in appropriate cases, a party will need to call -an or experts in support of his case. When such a person is called as a witness in civil proceedings his opinion is admissible on any relevant matter, including an issue in the proceedings, on which he is qualified to give expert evidence.

Footnote 7 relating to the underlined words states:

These have included matters of science, art and trade.

I would also refer to Selvam J's decision (chapter 12) in *Gunapathy Muniandy v James Khoo & Ors* (Suit No. 1768 of 1999 *unreported*) to reinforce my comment that Loke (who is a qualified quantity surveyor with 28 years' experience in the construction industry) can be considered an expert witness whose opinion should not be disregarded; it is for the Registrar at the assessment stage to determine and give the appropriate weight, to Loke's testimony.

71. For the CC project, the plaintiffs are entitled to final judgment in the sum of $5,035.84 (based on the admission in paras 21 (e) and (f) of the Defendants' Further and Better Particulars filed 9 February 2001). Similarly, based on the same admission by the defendants, they are liable to the plaintiffs for GST on the contract sum of $3.2m, equivalent to $96,000. The plaintiffs are awarded interlocutory judgment for the 33 variation claims admitted by the defendants, which claims shall be assessed by the Registrar with costs of assessment reserved to him. Their claims for variation orders nos. 8, 12 and 14 are dismissed with costs.

72. The defendants on their part are entitled to judgment on their counterclaim save for the claim for sealant works. Accordingly, I award them final judgment in the sum of $30,028.50 made up as follows:

a. $1,300 for mobile scaffolding;

b. $987 and $1,545 for rent of forklift and gondola respectively

c. $3,090 for damage to scanclimber;

d. $3,750 for damage to 49 glazing panels;

e. $3,646.50 for damage to window sills;

f. $3,750 for cost of site office;

g. $11,960 for charges for shop and tender drawings respectively

and interlocutory judgment for the claim for clearance of debris, based strictly on reimbursement to the defendants of backcharges imposed by Sato for this item.

73. As it was not disputed from the outset by the defendants, the plaintiffs are also entitled to final judgment for $19,434.65 for the China Square project and judgment for $34,388.61 for the Goldbell project, subject to my finding on the defendants' counterclaim for defective works and, whether they are entitled to a set off for the compensation sum they had to pay to Goldbell's owners. If the defendants' counterclaim for the Goldbell project is upheld, the plaintiffs would be out-of-pocket due to the difference of $82,215.59 between their judgment sum and the defendants' compensation sum ($116,604.20).

Goldbell project

74. At this juncture, I turn my attention to the defendants' counterclaim for the Goldbell project. To recapitulate, the defendants' complaints and hence refusal to pay the plaintiffs the balance sum of $34,388. 61 related to the vast differences in tonality of the granite panels and the uneven lippages of each installed piece. It was Lee's testimony that the plaintiffs refused to carry out any rectification works for the tonality differences because they claimed the same were a natural phenomenon as granite is a stone. I reject this excuse outright. The defendants did not even make an attempt to rectify what they had done. Moreover, tonality differences could well have been minimised had more care been taken by the plaintiffs to match the pieces in the first place, before the pieces were polished.

75. If a picture speaks a thousand words, then the photographs taken by the defendants spoke volumes of the quality of the plaintiffs' workmanship. I refer in this regard to 2AB94A-D; those photographs showed the vast differences in tonality between adjoining granite panels. The plaintiffs' complaint that using spotlights to shine on the granite panels (as was done by Goldbell's owners) was not an acceptable method to show up differences in tonality is clearly unsustainable in the light of these photographs.

76. As for lippages, the plaintiffs cannot blow hot and cold - on the one hand, claim they had the necessary expertise to cut and install granite panels and on the other hand (after undertaking the job) excuse their poor workmanship on the basis of the difficulties inherent in cladding elliptical columns. The short answer is that they should not have taken on the contract in the first place if they did not have the necessary skill. The defendants had also taken close-up photographs (2AB94E-F) of Goldbell Tower which showed uneven and protruding joints, which were very very obvious. In this regard the Guide Lee relied on has no application whatsoever, as it applied to <u>interior</u> not <u>exterior</u> stoneworks. Lee's testimony on the reasons for the plaintiffs' poor workmanship was highly unsatisfactory to say the least (NE 184-192). I refer in particular to his affidavit paras 29 and 30 where Lee had stated:-

> 29. And that 12 mm lippage was intended to apply to flat panels. For curved panels, the industry should accept a larger lippage. It was reasonable to accept a lippage of more than 12 mm for the elliptical column panels.
>
> 30. This was also reasonable because the grout joint between the individual elliptical column panels was 10 mm as specified in the Tender Drawings. The industry standard for flat panel joints was up to 2 mm wide. As stated at paragraph 28 above the acceptable lippage was up to 6 mm ie 3 times the width of the joint. The 2 mm joint width enabled the panels to camouflage the 6

mm lippage by filling in the difference in panel levels. In the present case the joint width was 10 mm and more than sufficient to camouflage a lippage of up to 12 mm.

Counsel for the defendants quite rightly asked Lee how the plaintiffs were able to 'camouflage' 6 mm lippages with 2 mm joints. No satisfactory explanation was provided despite Lee's attempts to demonstrate with 2 pieces of granite provided by the defendants. Even when he was recalled to the witness stand (N/E395-397) to give a second demonstration on how the lippage between two (2) granite panels were camouflaged using brackets and sealant, Lee could not deny that there was still a protrusion from the upper side. I should add that in this second demonstration, Lee used 8 mm gap for the joints. It can therefore be safely assumed that if the gap was only 6 mm, the protrusion would have been even more obvious.

77. Accordingly, I find for the defendants on their counterclaim for the Goldbell project; there is a net amount of $82,215.59 due to them after setting off the plaintiffs' judgment sum of $34,388.61.

78. Taking all three (3) projects into consideration, the figures for purposes of final judgment are as follows:

Due to the plaintiffs:	
a. China Square …….	$ 19,434.65
b. CC project ($5,035.84 + $96,000)……	$101,035.84
c. Goldbell project ……	$ 34,388.61
	$154,859.10
Due to the defendants:.	
a. CC project……	$ 30,028.50
b. Goldbell project ……..……..….	$116,604.20
Net amount due to the plaintiffs	$146,632.70
	$ 8,226.40

Costs

79. As it is difficult at this stage to determine what will be the quantum of the plaintiffs' claims for variations until after assessment by the Registrar, I shall reserve the issue of costs and interest

on the various judgment sums hereinbefore set out, until after the assessment process; parties should then write in for a further hearing on the issue of costs.