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Improvement for significant clauses in the standard form of contract for industrialized building system construction

Mohd Ashraf Mohd Fateh¹, Hanah Zakariah² and Shaiifa Ema Ezanee³

¹School of Energy, Geoscience, Infrastructure and Society, Heriot-Watt University, 62200 Putrajaya, Malaysia

²Faculty of Engineering, Science & Technology, Infrastructure University Kuala Lumpur, 43000 Kajang, Selangor Darul Ehsan, Malaysia

³Finance Department, Perbadanan Pr1ma Malaysia, 47301 Petaling Jaya, Selangor Darul Ehsan, Malaysia

Corresponding author: mohd.ashraf.fateh@gmail.com

Abstract. Industrialized Building System (IBS) has been introduced in Malaysia since the 1960s. The government has come out with various strategic blueprint to push IBS as a national agenda. Unfortunately, the pace of adaptation of IBS is still slow and below the government's target. Construction players are still facing various issues when adopting IBS particularly on contractual and procurement aspects; thus it contributes to the low adoption of IBS in Malaysia. Lack of provision in the Malaysia standard form of contract is one of the issues. There are six (6) significant clauses in the Malaysia standard form of contract that can be improved to make it more conducive to IBS construction approach. Therefore this research will attempt to investigate the factors of improvement for the six (6) significant clauses in the standard form of contract with IBS construction. A semi-structured interview was used in the data collection exercise. The study revealed that there are eleven (11) factors of improvement for the six (6) significant clauses in the standard form of contract with IBS construction approach. The findings will be useful in order to enhance the local standard form of contract to suit the IBS construction approach hence able to accelerate the adoption of IBS construction in Malaysia.

1. Introduction

Report by the Leng [1] highlighted that the construction sector for 2019 is 4.9% which indicate a slight increase from 2018 which is 4.5%. The growth up marginally due to the increase in new planned supply in affordable housing projects. In September 2015, the Construction Industry Development Board (CIDB) launched the Construction Industry Transformation Programme 2016-2020 (CITP). One of the CITP's objective is to transform the construction industry to become highly productive sector using IBS technology. Based on the findings by Mohd Fateh & Mohammad [2] and Kamaruddin *et al.* [3] Malaysia government has been pushing the IBS as the national agenda with numerous initiative namely CIMP in 2006, IBS roadmap in 2010 and CITP in 2015. Nevertheless, a report CIDB [4] highlighted that the adoption rate is still low and did not meet the government's target.

Most of the previous research on IBS is focus more on the technical parts which include the components/products itself and construction process. There is a lack of research on the contractual aspect according to Abd Jalil *et al.* [5] and Mohd Fateh & Mohammad [2]. Therefore, this paper will



focus on the eleven (11) factors of improvement for the six (6) significant clauses in the standard form of contract with IBS construction approach. This research will give an insight of information and guidance to all the related stakeholders such as CIDB, Public Works Department (PWD), expert panels, academicians and related IBS players. The challenges in boosting the adoption of IBS projects would be looking at the enhancement of the standard form of contract for IBS construction approach. It will give a value-added impact on the adaptation of IBS construction approach. CIDB supported [6] stated that a suitable standard form of contract for IBS would invariably expedite the project success.

This paper is structured into three parts. Firstly, the review covers a broad range of literature providing an overview of the construction industry, IBS scenario in Malaysia and the standard form of contract. The second part discussed the methodology used for this research. The last part discussed findings and conclusions derived from evidence from the literature review and semi-structured interview.

2 Literature Review

2.1 The Construction Industry

The construction sector is one of Malaysia's key economic drivers and a significant enabler of the Economic Transformation Programme as highlighted by Hussain [7]. The construction industry offers goods and services. For goods, it creates a vast source of demand for metals, ceramics, cement and other building raw materials while also being a large buyer of higher-value-added equipment and machinery. With this, the local construction industry contributes 15% of the output of Malaysia's manufacturing sector. For services, the construction industry is a vital consumer of a range of services from knowledge-driven consultancy and engineering, as well as a broad base of financial services. With this, the industry accounts for 5% of the total output from the Malaysian services sector [8].

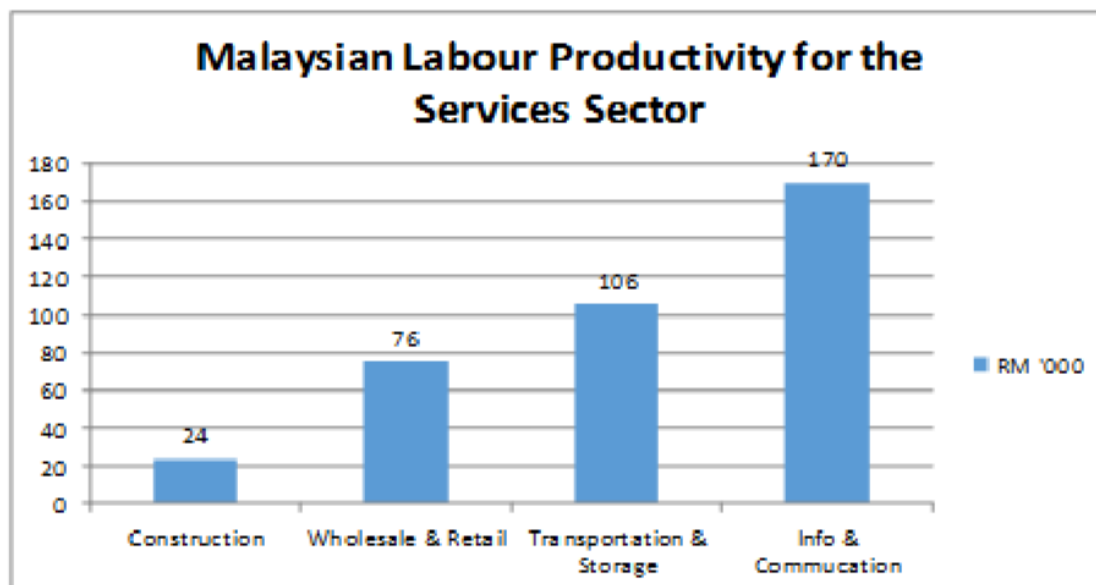


Fig. 1: Malaysian Labour Productivity for the Services Sector (Department of Statistics [9])

Nevertheless, the construction industry records low productivity levels relative to other sectors in Malaysia as reported by Department of Statistic [9], shown in figure 1. The relatively low productivity is a reflection of limited modernisation of construction methods such as IBS and the reliance on low-skilled labour.

2.2 IBS in Malaysia

CIDB [10] defined IBS as a construction technique in which components are manufactured in a controlled environment (on or offsite), transported, positioned and assembled into a structure with

minimal additional site work. Previous research have proved that IBS able to offer considerable benefits in terms of cost and time certainty, attaining better construction quality and productivity [11-22]. Nevertheless, the pace of adaptation of IBS is still slow and below the government's target. Construction players are still reluctant to adopt the IBS construction approach due to uncertainty in the provision of the standard form of contract. According to Mohd Fateh *et.al* [12] and Mohamad Kamar *et.al* [23] stated that the construction players are still facing some issues and challenges in contractual aspects when adopting IBS; thus it contributes to the low adoption of IBS in Malaysia. Based on the preliminary study being done by Mohd Fateh *et.al* [12] stated that all respondents agreed that it is a necessity to enhance existing Malaysia's standard form of contract to suit IBS construction approach. Therefore, this research is to investigate the factors of improvement of the existing provision in Malaysia's standard form of contract to suit IBS construction approach, hence propel the acceleration adoption of IBS construction approach parallel with the CITP's vision.

2.3 Standard Form of Contract

The standard form of contract is a pre-printed form with a set of terms and clauses specially drafted by professional or public organisations for the use in the construction project. This was agreed by Abdullah [24] mentioned the standard form of contract contains terms and agreement (clauses) between the client and contractor which includes right, obligations, responsibilities and work to be done. The standard form of contract will be a part of the document contract for each project. The principal parties in a construction contract will be the client and the contractor. The client acts as the owner of the project while the contractor acts implementer of the project.

Although there are varies types of standard form of contract in the industry as explained in the previous section, nevertheless overall structure is the same as highlighted by Abdullah [24]. The standard of form contract consists of three (3) sections namely:

- The articles of agreement: In this section, it spells out the overall information of the contract which includes when the contract is being formed, the parties in the contract, the scope, value, location, and the period of the contract. The definitions and interpretation of words and phrases in the contract also be explained in this section. Lastly, the attestation space. It is an act of witnessing the signing of the contract where both parties will put pen to paper and 'execute' the contract.
- The condition of contract: This is the main body of the standard form of contract. In this section, it spells out in particular clauses laying down the rights and obligations of the parties in the contract. All of the clauses are presented in a numbered format for ease of references. The clauses include the usual performance required from each party, rules/procedures for conduction the contract, dealing with disputes arise and also terms of payment to the contractor.
- The appendix: this section contains the essential contract particulars such as the contract period, completion date, defect liability period and the rates of the liquidated damages. All the blanks space for the contract particulars need to be filled because some of the clauses are not applicable at all unless the appendix section is filled. For some clauses, if there are not values made than the default values apply for example if no defect liability periods inserted, then it will be 12 months.

2.4 Standard form of contract with IBS construction approach

According Jaafar and Radzi [25], the procurement system in Malaysia has not evolved dramatically since the British colonial era. Many clients in the local industry prefer to choose procurement systems considered familiar, even though the criteria and purposes or every project are different. Previous research by [12] stated that every project is unique and dynamic in terms of processes, resource allocation, risk exposure and responsibilities between all parties, therefore, there is a necessity to develop a framework for improving the significant clauses in the standard form of contract to make it more suitable for the IBS construction approach in Malaysia. Jaafar & Radzi [26] suggested that when there are changes in the method of construction, there is also a need to adopt a new procurement system and standard form of contract. Using unsuitable standard form of contract in IBS will not only affect the progress of the project but will also affect the construction team in terms of understanding and interpretation of the regulations. According to Gandu *et.al* [27] and Lutz Preuss [28], the system

of procurement and standard form of contract are considered as the key to project success. Blismas & Wakefield [29] also agreed that in producing a successful IBS project, the contractual approach must be suitable. Findings by Abd Jalil *et.al* [5] highlighted that a specific procurement system and standard form of contract is required as the IBS construction approach involves unique producers and processes which are different from traditional construction. Previous researchers had concluded that the current traditional standard form of contract was not suitable for the IBS construction approach, especially in terms of payment and project coordination [5]. This was agreed by [23] who reported that the existing standard form of contract does not favour the industry players that want to adopt the IBS construction approach. The [30] also highlighted that several of the barriers that hinder the adoption of the IBS construction approach involves the lack of a procurement method and provision in the standard form of contract. Findings by [2] identified that there are six (6) clauses that are significant to the IBS construction approach.

2.4.1. Clause 1: Definition of unfixed material and goods. In this clause, it stated that all unfixed material and goods need to be on or adjacent to the site. The contractor is fully responsible for the loss or damages to the unfixed material and goods. The material and goods need to be delivered to the site following the project progress; it cannot be 'premature' delivered to avoid any unwanted circumstances (site congested, material damages or lost). When the client has made the payment, the unfixed material and goods will be the client. In the context of the IBS construction approach, it is significant due to most of the unfixed material and goods are not being delivered to the site. All of the unfixed material and goods are being stored/used off-site. Therefore, the provision in the clause is not friendly to the IBS construction approach and might need to be improved. This clause also is related and will give implication to the evaluation of interim payment to the contract which will be discussed next.

2.4.2. Clause 2: Evaluation of interim payment. In this clause, it stated that the client needs to evaluate at least once a month on the progress of work done. The value of the interim payment will be based on two (2) component; the progress of work done that fulfils the specification and the material that has been delivered on-site according to the project progress. The client needs to issue the interim payment certificate within 14 days of the evaluation of the site, and the payment needs to be done by 30 days upon the interim payment certificate issued. In the context of the IBS construction approach, both of the components to calculate the value of the interim payment are not applicable. As discussed earlier, most of the activities in IBS construction approach are being done off-site thus making the contractor cannot claim any value to the progress of works and off-site activities. This will create a very tight cash-flow for the contractor because the contractor needs to pay the manufacturer up front for the manufacturing process of the components to start. The contractor also needs to pay for other works to start such as preliminary works or piling. In other words, the contractor needs to upfront much capital without able to claim within or next month. This might propel other issues in the project such as delay and termination. Therefore, the provision in the clause is not friendly to the IBS construction approach and need to be improved.

2.4.3. Clause 3: Inspection, testing of material, goods and equipment. In this clause, it stated that the contractor needs to carry out the inspection and test as approved in the contract or elsewhere as the client required. The inspection and test of the material, goods, and equipment whether or not already incorporated in the works. The contractor from time to time also needs to provide such assistance such as instrument or machine that is required the inspection and testing. This includes supplying samples before incorporation in the works. In the context of the IBS construction approach, this provision to allow the inspection and test are done whether or not already incorporated in the works is favourable to IBS construction approach. Nevertheless, the researcher still selects this as one of the significant clauses to the IBS construction approach because the researcher wants to test and get the opinion from the industry players on these matters. Industry players might not be on the 'same page' because it might incur additional cost to conduct an inspection and test for the works that have not incorporated in the works (off-site).

2.4.4. Clause 4: Insurance/Bond. In this clause, it stated that the contractor needs to take insurance in the joint names of the client. The insurance will cover against loss, damages, lightning explosion, storm, flood and many more. The coverage protects all work executed and all unfixed material/goods that are delivered, on or adjacent the site (on-site only). In the context of the IBS construction approach, the provision in the clause only allows the material onsite to be covered by the insurance. Since most of the activities in IBS construction are offsite, the researcher believes that the clause is not favourable to IBS construction approach thus making this clause significant to IBS construction approach. Therefore, the provision in the clause is not friendly to the IBS construction approach and need to be improved.

2.4.5. Clause 5: Submission of the supervision report. In PWD 203A, no clause required the contractor to submit a supervision report to the client. On the hand for PWD DB, the contractor is required to submit on-site report activities which include works correctly done, the progress of works, test done and safety measures on site. In the context of the IBS construction approach, it is okay if there is a clause for the submission of the supervision report. Nevertheless, the scope is of the supervision report should be extended which includes the offsite activities since most of the activities for the IBS construction approach are offsite. Therefore, the clause should be added to make it more IBS construction approach.

2.4.6. Clause 6: Extension of time (relevant events). In this clause, it stated the rules, procedures and relevant events that the contractor can refer to apply the extension of time. In brief, the contractor should write to the client on the causes and calculation of the length of delay with the supporting documents. The causes of delay should be within the relevant events stated in the clauses. Nevertheless, all of the relevant events stated in the clauses in focusing on site activities only. In the context of IBS construction approach, the provision in the relevant events to focus only on site is not favourable. The researcher believes that for the IBS construction approach, the relevant events should extend to the off-site activities such as at the factory or fabrication yard where the IBS components are being manufactured.

In summary to the literature reviews, it shows that there is room for improvement for provision in the significant clauses in the existing Malaysian standard form of contract with the IBS construction approach. As of to date, there is still a lack of provisions in the Malaysia standard form of contract to suit the IBS construction approach as reported by Mohd Fateh *et. al* [12]. Abd Jalil *et. al* [5] stated that despite the varies Government's efforts in pushing IBS as national agenda (IBS roadmap, CIMP and CITP), there are not detailed IBS building guidelines or standard regulations for procurement systems or contract documents in term of tendering, design, construction and operation have been produced. Research by Abd Jalil *et. al* [5] add up that the current standard form of contract has not addressed this very pertinent issue. Therefore this research will attempt to investigate and identify the factors of improvement for the six (6) significant clauses in the standard form of contract with IBS construction.

3. Methodology

Literature review and semi-structured interview were used in the data collection exercise. For the first phase, literature review derived from relevant books, journals articles, thesis and dissertations, conference proceedings and reports were examined. For the second phase, a semi-structured interview was done to the government officials, private clients and contractors. The justification for focusing on these three (3) groups is as follows:

- As the project owner, a client (government or private) always has the final say in deciding the appropriate standard form of contract to be used in the project.
- As the project implementer, a contractor's opinion is critical to ensure that the research is not biased. A contractor also plays essential roles in the adoption of IBS construction.
- Both client and contractor are the main parties bound by the main contract using the standard form of contract that is the subject of this research.

The justification for the semi-structured interview was used because when dealing with contracts and clauses, the quantitative analysis cannot record the qualitative aspects of the research. Ideas, opinions and comments (qualitative) are needed. By doing the semi-structured interviews allows the respondents to express themselves autonomously, thus providing a type of information that is eminently qualitative [31]. Leiva *et.al* [31] also added that the data collected will have a greater richness and depth in the responses compared to quantitative data. This is because the respondent can express his/her thoughts and opinions and be able to provide more lengthy explanations. Patton [32] stated that semi-structured interviews are used to develop an idea that will attempt to understand how people think and feel about the issues. To ensure that the respondents were able to answer transparently and without bias, the researcher had already stated that all information collected would be kept confidential although the results of the research would be published. Therefore, all respondents' details will not be published and only be coded as "Respondent 1 (R1) or Respondent 2 (R2)".

Based on the guidelines provided by Miles *et. al* [33], content analysis was applied to the qualitative data (semi-structured interview) from this research. Content analysis can be defined as an observational research method that is used to systematically evaluate the symbolic contents of all forms of recorded communication Sekaran and Bougie, Kolbe and Burnet [34-35]. [34] also added that content analysis is suitable to analyse newspapers, websites and recordings of interviews.

4. Results and Discussions

4.1 Respondents' demographic

The demographic profile contains information regarding the personal and behaviour-related information of the respondents. In this study, the personal information that is collected includes the respondent's name, designation, sectors, contact details and years of involvement with IBS. Table 1 shows the frequency and percentage analysis according to the organisation sector of the respondents. The highest sectors recorded were private client and contractor with 7 (36.8%) respectively. The lowest will be the government sector with 5 (26.4%). Table 2 shows the frequency and percentage analysis according to respondents' years of experience with IBS. A majority, 11 (57.9%), of the respondents, have more than 10 years of experience. This is followed by respondents with 6 to 10 years of experience, 5 (26.3%). A small number of respondents, 3 (15.8%), have 1 to 5 years of experience. The data collected show that respondents have vast experienced in IBS construction approach. Therefore, the data collected can be considered reliable and good for the study.

Table 1. Organization sectors of the Respondents (N=19).

Sector	Frequency	Percentage (%)
Private Client	7	36.8
Contractor	7	36.8
Government	5	26.4
Total	19	100

Table 2. Respondents' Years of Experience in IBS (N=19).

Years of experience	Frequency	Percentage (%)
1 to 5 years	3	15.8
6 to 10 years	5	26.3
More than 10 years	11	57.9
Total	19	100

4.2 Clause 1: Definition of unfixed material and goods

The definition of unfixed material and goods in the standard form of contract only acknowledges that they are on-site. As discussed in the literature review, most of the activities for the IBS construction approach take place off-site. 'Acknowledge offsite material as well to be unfixed material and goods' had the highest frequency of 77 (87% positive) while 'quality stated in specifications' had a frequency of 9 (95.7% positive) and 'acknowledge only onsite material as unfixed material and goods' the lowest frequency of 3 (87% negative). Table 3 summarises the frequency of occurrence of themes and the respondents' positive and negative reactions. Extracts of typical comments made by the respondents are also presented.

- R1: "Most of the components for IBS construction will be in the factory (offsite); therefore it is reasonable to acknowledge offsite material as unfixed material and goods as well."
- R12: "... definitely need to acknowledge offsite material as well, because all of the raw material for IBS components (cement, sand and reinforcement) will be offsite (factory). The casting and curing process will be offsite. Once it is done, and then only delivered to site. When it reached the site, it will proceed directly for installation thus is not considered as unfixed material and goods already."

Table 3. Summary of content analysis for clause 1: definition of unfixed material and goods.

Rank	Themes	Frequency of occurrence	% Response	
			Positive	Negative
1	Acknowledge offsite material	77	87	13
2	Quality stated in specifications	9	95.7	4.3
3	Acknowledge only onsite material	3	13	87

4.3 Clause 2: Evaluation of interim payment

Evaluation of interim payment has always been a profound issue in IBS construction. In the standard form of contract, the evaluation of interim payment was based on two (2) items, namely, the progress of work done on site and the material on site. Based on the literature findings, the mechanisms of the evaluation need to be reviewed to suit IBS construction. Based on the content analysis for this clause, it can be broken down into four (4) themes. All respondents mentioned that the mechanism of interim payment needs to be enhanced to suit IBS construction (72 occurrences, 95.7% positive). This was followed by the need to certify offsite material as interim payment as well (71 occurrences, 87% positive). The negative impacts on the evaluation of the interim payment are the difficulties of proving that the progress of works done onsite (29 occurrences, 82.6% negative) and the materials need to be onsite only (6 occurrences, 91.3% negative). Table 4 summarises the frequency of occurrence of these themes and the positive and negative reactions recorded from the respondents. Extracts of typical comments made by the respondents are also presented.

- R20: "The mechanisms of the interim payment for IBS components need to be changed. For example, for M&E works, there will be a certain amount of payment once approved for certain test/requirement at the factory. Even though that item has not been delivered to the site, the same principle can be applied to IBS components."
- R2: "It will be much better if the evaluation of interim payment will include the off-site material as well. For IBS construction, most of the activities and progress are being done offsite. Therefore the contractor cannot claim for the progress of work done and material onsite. It will create a very tight cash flow that might lead to other problems in constructions".

Table 4. Summary of content analysis for clause 2: evaluation of interim payment.

Rank	Themes	Frequency of occurrence	% Response	
			Positive	Negative
1	Review the mechanism of interim payment.	72	95.7	4.30
2	Need to certify offsite material as well.	71	87	13
3	Proof of progress of works.	29	17.4	82.6
4	Material needs to be onsite.	6	8.70	91.3

4.4 Clause 3: Inspection, testing of materials, goods and equipment

In the standard form of contract, the inspection and testing of material, goods and equipment are only being done for the work already incorporated on site. There is a mixed pattern of reactions (positive and negative) of respondents for this clause. The highest frequency of 99 occurrences (65.2% positive) is for the respondents' stated need to allow for the inspection even though the items have not yet been incorporated on site. Some respondents stated that there is no need for inspection if an item has not yet been incorporated because all components will come with a certification of inspection (24 occurrences, 73.9% negative). Lastly, respondents highlighted that a proper procedure of inspection is needed to allow for the inspection even though the items have not yet been incorporated onsite if required (7 occurrences, 82.6% positive). Table 5 summarises the frequency of occurrence of the themes and the positive and negative reactions from the respondents. Extracts of typical comments made by the respondents are also presented.

- R4: "...need to allow for the testing being done even though the work is not incorporated yet. This can prevent any failure or error on the ground before it is installed on site. The client also will have the opportunity to inspect not only materials but also the facilities of the factory."
- R7: "... most of the material for IBS will be received offsite; therefore it is good if want to inspect before it is incorporated in works. The client can ensure the quality (for example consistency) of the components straight in the factory. If it does not meet the standard, the manufacturer can be notified and rectify early. These steps will save time and cost of transportation."

Table 5. Summary of content analysis for Clause 3: Inspection, testing of materials, goods and equipment.

Rank	Themes	Frequency of occurrence	% Response	
			Positive	Negative
1	Allow for the inspection even though not yet incorporated onsite.	99	65.2	34.8
2	The material will come with a certification of inspection.	24	26.1	73.9
3	Proper procedure of inspection.	7	82.6	17.4

4.5 Clause 4: Insurance/Bond

Three (3) themes were identified for this clause. These were, whether to include offsite (activities/facilities) scored the highest frequency (23 occurrences, 69.6% negative) followed by to maintain the existing practice in the standard form of contract (23 occurrences, 60.9% positive) and, lastly, respondents highlighted that it is most likely if the offsite (activities/facilities) are included that the cost of the project will increase (5 occurrences, 82.6% positive). For this clause, there is a mixed response (positive and negative) from the respondents. Table 6 summarises the frequency of occurrence of the themes and the positive and negative reactions recorded from the respondents. Extracts of typical comments made by the respondents are also presented.

- R11: "It is required to include offsite as well. In case of anything happening offsite, the insurance will cover it. As we are aware, most of the IBS construction activities will be done offsite. It also will be able to secure both parties."
- R16: "... if it can be done, it is good for contractor and client. Proper clauses need to be mentioned in the standard of form to ensure that all parties understand and are aware of it. Another option is only extending the coverage of the existing clauses."

Table 6. Summary of Content Analysis for Clause 4: Insurance/Bond.

Rank	Themes	Frequency of occurrence	% Response	
			Positive	Negative
1	Include offsite (activities/facilities).	23	30.4	69.6
2	Existing practice is sufficient.	12	60.9	39.1
3	Increase cost.	5	82.6	17.4

4.6 Clause 5: Submission of the supervision report

The clause in the standard form of the contract stated that the submission of the supervision report is only for onsite activities. Based on the content analysis of the interview, two (2) themes were identified, namely, the scope of the report needs to be extended to cover the offsite activities (59 occurrences, 78.3% positive) and the quality of the report needs to be standardized and needs to be correctly set out in the standard form contract to prevent disputes and discrepancies later (15 occurrences, 52.2% positive). Table 7 summarises the frequency of occurrence of the themes and the positive and negative reactions recorded from the respondents. Extracts of typical comments made by the respondents are also presented.

- R11: "The report should cover offsite activities as well as more work is done off-site. The offsite reports also will help to plan the onsite activities (in terms of delivery dates, installation and site readiness)."
- R12: "... it is good if we can have it. So we will know what is going on in the factory. The information will be useful for planning and works execution. It also will be written evidence if in the future the contractor wants to claim for extension of time."

Table 7. Summary of content analysis for clause 5: submission of the supervision report.

Rank	Themes	Frequency of occurrence	% Response	
			Positive	Negative
1	Cover offsite activities.	59	78.3	21.7
2	Quality of the report.	15	52.2	47.8

4.7 Clause 6: Extension of Time (Relevant Events)

Three (3) themes were derived from the responses recorded; namely, the practice of extension of time remains the responsibility of the contractor and needs also to consider the offsite activities but make some amendments on the relevant events. Most of the respondents stated that things should remain as spelt out in the standard form contract (32 occurrences, 60.9% positive). Followed by the extension of time is the sole responsibility of the contractor (27 occurrences, 78.3% negative) and lastly, need to consider offsite activities as well but make some amendments on the relevant events (13 occurrences, 56.5% negative). Table 8 summarises the frequency of occurrence of the themes and the positive and negative reactions recorded from the respondents. Extracts of typical comments made by the respondents are also presented.

- **R1:** "... extension of time needs to consider only onsite relevant events. Extending the scope of extension of time to offsite will open plenty of problems and loopholes. The contractor needs to organise and plan their works according to the IBS construction approach."
- **R3:** "We can consider offsite as well, but the 'relevant events' in the standard form of the contract need to be amended as well. Clearer scope and limitations need to be stated to

prevent misuse of the clauses. As a contractor, it might be a sweet deal, but as a client, it is not very practical. The contractor might use it as an excuse to claim for extension of time. Therefore the relevant events and implementation need a fine tune if want to include the offsite delay."

Table 8. Summary of content analysis for Clause 6: Extension of time (relevant events).

Rank	Themes	Frequency of occurrence	% Response	
			Positive	Negative
1	Fine-tune the relevant event to suit IBS environments.	32	60.9	39.1
2	Responsibility of contractor.	27	21.7	78.3
3	Consider offsite with amendments on the relevant events.	13	43.5	56.5

5. Conclusion

From the study conducted, it shows that there is room for improvement to Malaysia's standard forms of contract in the provision for IBS construction approach. All of the improvement might be able to reduce the uncertainty and potential risk to the industry players when dealing with IBS construction approach thus accelerate the adoption in IBS construction approach. For IBS construction approach to be adopted effectively and efficiently, attention needs to be given not only on the technical but also in the contractual parts. Both parts play a vital role in the adoption of the IBS construction approach. Previous findings by Mohd Fateh & Mohammad [2] show that the current standard form of contract does not provide enough provision for the IBS construction approach. Therefore, it is necessary to improve the standard form of contract to suit the IBS construction approach hence accelerate the adoption of IBS construction. The output of this research will hopefully illustrate good insights into the industry and help to accelerate the adoption of IBS construction in Malaysia as a whole.

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