

An Audit of Occupational Safety and Health at the Workplace: A Case Study at the Faculty of Social Science and Humanity (FSSK), University Kebangsaan Malaysia

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Abstract: An aspect of occupational safety and health that may pose various occupational risks to Faculty of Social Science and Humanity (FSSK) students and staff stems from the work environment itself. Health and safety audit is a tool that can be carried out to identify the hazard in the workplace as well as to evaluate and estimate the risk of accidents. It can directly reduce workplace accidents especially in the Faculty of Social Sciences and Humanity, University Kebangsaan Malaysia. This study seeks to identify the level of safety and health in FSSK. Safety inspection or audit conducted is in accordance with criteria and indicators listed in the checklists that have been formed based on the audit forms from the Department of Safety and Health (DOSH), National Institute of Safety and Health (NIOSH) and the Occupational Safety and Health Committee of UKMs (JKKP). Each blocks in FSSK is audited using points and percentage score. Based on the overall score, the average safety score in percentage, blocks AI and AII scored 81.4%, block B scored 72.9%, block C scored 85.2%, block D scored 81.2%, block E scored 80% and block F scored 77.5%. The results of the study show that most of the blocks are in a very safe level, except for block B that is on a safe level. The audit has pointed out several technical aspects of safety that must be given attention. In conclusion, the role of employers and the administration are needed to ensure the effective and integrated management of occupational safety and health in each block.

Key words: Occupational safety, health, audit, risks, technical aspects, safety inspection

INTRODUCTION

Audit is defined as a review and evaluation of records and activities conducted to evaluate the control system in order to ensure it is consistent with the policies and procedures that have been determined (Dang, 2004). Audit has also been seen as an independent body which conducts an objective assessment and consultation activities which aim at adding value and enhancing the organization's operations. It helps the organization to achieve its objectives through a disciplined audit approach and to systematically evaluate and improve the effectiveness of risk management, control and process (April *et al.*, 1998). Gay and New (1999) have identified several important elements which can ascertain the success of Occupational Safety and Health management. One of the element is an audit process which is an indepth

study. They also state that in the context of Safety and Health, the term audit means adaptation and comparison of management systems. The entire audit guidelines and process require participation and planning by the organization and must be unbiasedly carried out. This tool plays an important role in determining the strengths and weaknesses of a safety and health management system. As any other process, audit process requires procedural control and tangible evidence. Organization on the other hand should ensure that each levels of management take notice on the use of audit as an important appraisal method in Occupational Safety and Health management. Lindsay (2000) has conducted a study on the role of audit in encouraging and improving health. This study provides summary and guidelines to those who require additional information and it also elucidates that a reference to health education or health behavioral theory is the main

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source for a more detailed analysis. Audit should refer to the past programs; however it would not be complete without a look at the aspects of health promotion programs for the future. In fact, he found that the audit process should take into account the elements of effective programs in which implementation have been recognized by international experts. A study on healthcare audit has also been carried out by Shelmerdine and Williams (2003). The study describes the use of audits in the Occupational Safety and Health at the organization level and the second is to audit the services provided in health in workplace and health risk management. They found that organizations need to manage safety and health in accordance with the expertise and the same standards as other companies if they really want to control and to prevent the problems from befalling on others. The audit is carried out using a set of questions that are generated through discussion on the strengths and weaknesses of using this method and the proposed improvements of it. Through these proactive measures, the effectiveness of safety and health programs can be monitored properly to ensure goals are achieved as well as compliance with Occupational Safety and Health Act.

Arifin *et al.* (2010a) have conducted a study of occupational safety and health audit facilities at student resident at Ungku Omar College (UOC) University Kebangsaan Malaysia. By using criteria and indicators as listed in checklist of hazard risk assessment, safety inspection or audit was conducted at various places in UOC. The results show the whole of UOC facilities score above the required safe indicator of 50%. At the same time Arifin *et al.* (2010b) also studied the student perception and awareness about health and safety management in university student residential college at Ibrahim Yaakob College, UKM. Research findings show various stages of awareness and knowledge level. As much as 36.5% respondent have been involved with Occupational Safety and Health programme, 45.6% aware of safety procedure during emergency, 74.5% aware of safety equipment at college residential and 54.12% feel safe with the college residential environment. According to Arifin *et al.* (2008) on whether legislation may be used as means to handle and entertain accidents problem at workplaces indicates that apart from Occupational Safety and Health Act which has laid sufficient measures in order to control and prevent accidents, it is also important for every stakeholders to be able to understand the provision prescribed in the legislation.

Apart from that Birkmire *et al.* (2007) through his audit study states that effective audit system is the one

that identify safety regulations in certain region for improvement process. This is important in manning the working environment. Apart from that the organization must have a strategy to enhance the employees awareness on safety and health at workplaces. Each strategy that has been formed must be implemented and it is very important to evaluate the effectiveness of each strategy. He has also stated that external safety audit involves three levels of planning process, performance evaluation and follow-up action. Thus, the more positive the effect of the safety management the more it will improve the quality of work.

According to Heron (1999) audit also play an important role in occupational safety and health management system. While Dimond (2002) states that the risk assessment process needs to be carried out as frequent as possible. The assessment should involve all activities of the organization so as follow-up actions can be taken to ensure safety of workers. Based on this aspect, the importance of audits conducted at the Faculty of Social Sciences and Humanities (FSSK) is to determine whether safety regulations implemented by the management in each area of the faculty are appropriate and in accordance with the prescribed standards. In addition, it is important to identify risk areas or situations so that preventive measures can be planned and implemented.

MATERIALS AND METHODS

This study employs survey method for data collection. The audit checklist form used in this survey has been developed by the researchers. The following are the steps that have been taken to develop the checklist. The first step is to collect all the available audit- or checklist-form from the difference safety and health agencies such as the Department of Occupational Safety and Health, the National University of Malaysia (UKM). The Institute of Occupational Safety and Health Malaysia (NIOSH, 2007) and Department of Occupational Safety and Health Malaysia (DOSH). The audit form used in this study is thus formed by selecting and adapting the relevant safety indicators in the collected audit forms. The selections are based on the suitability of the items with the structure and organization of the study. Other than the adapted items, several other indicators are also included in the audit form. This is done to ensure that the FSSK's audit form will cover all technical aspects of occupational safety and health specific to FSSK. The raw data collected from the audit form are analyzed

Table 1: Safety level indicator

Safety level	Score (%)	Color
Very safe	75-100	Blue
Safe	51-74	Green
Less safe	50	Orange
Not safe	1-49	Red

umulatively based on the score achieved and also statistically in term of frequency and percentage. The results of the analysis are then classified and categorized accordingly as to establish the safety level in each area and are presented in form of figure and table. The total score for each audited area is counted based on the following equation:

$$\text{Area total score} = \frac{\text{Score achieved}}{\text{Maximum score}} \times 100\%$$

The result of the percentage score is then used to establish the safety level of the designated areas. Indirectly this will reflect the role played by the employer in evaluating and evading the risk of hazard at work. The percentage method utilized is as shown in Table 1. Other than that the zoning of area to safe and less safe is indicated by assigning different color to different safe area (Table 1). Thus improvement measures can be taken once the unsafe or less safe zone is identified. The role played by the employers in evaluating and evading hazard at the workplace is very important in ensuring the safety of their employee.

RESULTS AND DISCUSSION

General building: FSSK general building consists of blocks AI, AII, B and F as shown in Fig. 1. In the diagram blocks AI and AII are indicated with blue color because these blocks are catogerialize as very safe with the total score of 177 equivalent to 75% while blocks B (72.9%) and F (67.8%) are green colored because their safety level are in the range of safe level (51-74%). The audit has brought forth the safety issues that need to be addressed especially blocks B and F that have low safety score. Some of the inadequacy that need to be corrected are the stairs that can easily flooded when raining, the barrier or gate at the access stairs and corridors are in dilapidated condition that can cause injuries such as slipping, falling and safety risks. The audit around FSSK general buildings have found several broken ceilings which can be harmful and can cause injury to any passerby. The lighting in the corridors have also been found broken and has not been replaced. This situation gets worse at night where the

corridor is somewhat dreary that less lighting in the area. However, other facilities such as exit sign, lights, emergency alarms and fire detectors have been replaced and are functioning properly. The digital alarm communicator attached to the building will alarm the Bandar Baru Bangi Fire Station in case of fire or emergency sirens and the emergency can be controlled quickly.

Storage area at FSSK: Storage facilities at FSSK are audited according to block. There is a store facility in each of AI, AII, C, D, E and F blocks. However, there is no storage facility in block B. The entire storage facilities on every block in FSSK building can be categorized as very safe with the score of 75-100% (Fig. 2). This is because the storage facilities satisfied all the audited criteria. The inventories are in good condition, secured and are arranged accordingly thus facilitates check in and checkout. There is no storage area in block B because the designated space has been used as photocopy outlet. The staff that is responsible for the storage facilities keeps the inventory list and the facility is always kept locked to avoid theft. Fire extinguisher is stationed right outside each storage facility thus shows the level of sensitivity of the employer in case of fire emergency in the store so that quick action can be taken.

Laboratory and workshop: There are no laboratory and workshop in Block B and F because these blocks are exclusive for lecture theatre. Actually the color red which represent the state of not safe does not actually mean the area is not safe but it is because there are no laboratory and workshop in the area thus the score obtained is the minimum (Fig. 3).

Block E is at the level of safe with the score of 73% this is due to the poor condition of the floor and passage lanes are obstructed. In the event of an emergency such as fire, these conditions will prevent and slow down the evacuation of staff and students to safe areas. Other blocks are at the level of very safe with the scores value of >75%.

This is because most of the laboratories and workshops have been repaired and modified and new equipments were acquired replacing the obsolete one. Results of the study have brought forth the criteria that should be given more attention for improvement. Equal focus on safety should be given to block E as given to the other blocks. However, the safety level of this block is at level 3 or safe condition. Apart from that the laboratory waste management system should also be improved

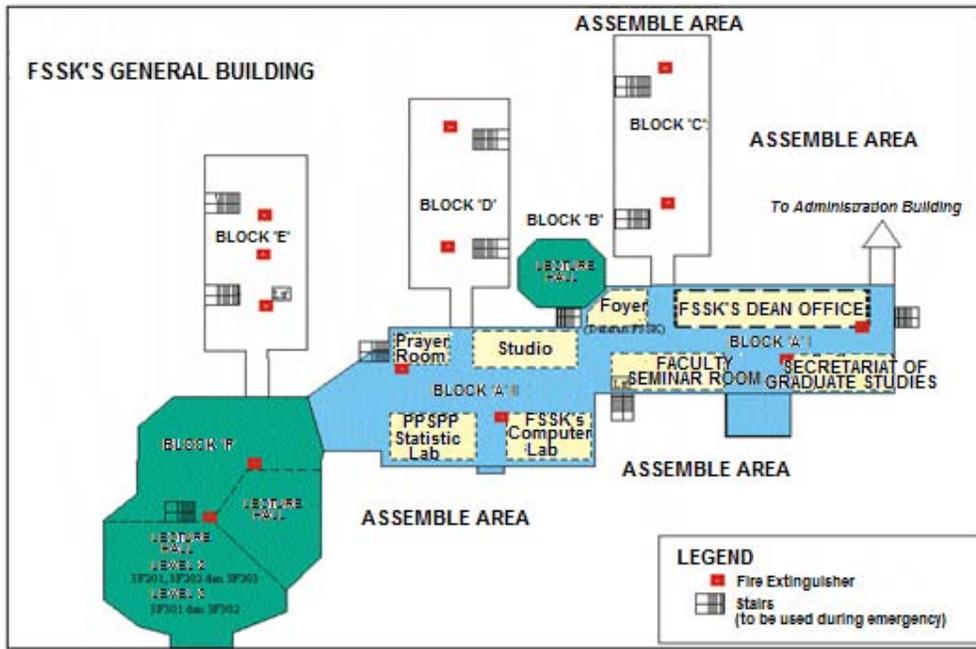


Fig. 1: FSSK general building plan

because the current audit have found waste from the lab such as chemical substance container and also waste from student fieldwork has not been disposed off appropriately. Special waste disposal bin should be provided in all laboratories and workshops. There are some inadequacies in the laboratories and workshops such as lack of emergency kit, no safety shower and eye wash for emergency assistance in case of accident involving chemicals.

Lecturer rooms: Study conducted in FSSK lecturer's rooms has found that these rooms are very safe. The audit selected ten rooms from each block randomly as to avoid biasness. The audited criteria are as shown in Table 2. The Table 2 also shows that all the audited rooms are categorized as very safe. Based on Table 2 the audit has found some weaknesses such as the poor lighting condition at blocks AI and AII this is because the sheath or host for fluorescent lamps in the area are not cleaned and in fact they are smothered with dust and small insect which has resulted in poor lighting. The audit also found that the windows in some of the audited rooms are fairly tight to open in fact all doors in the room are less resistant to fire because the door were built from flammable materials. The arrangement of furniture in the lecturers room should be arrange in such a fashion to facilitate exit in case of fire. The results show that there are only a few rooms in which the furniture needs to be rearranged so as

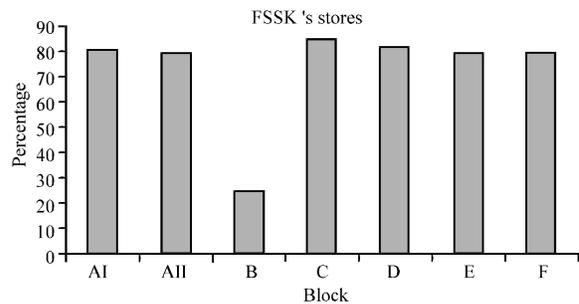


Fig. 2: FSSK's store safety percentage score

to avoid complication in case of emergency. FSSK should improve the safety of Lecturer rooms in FSSK. This is because lecturers are the backbone to every faculty in UKM and they play an important role in educating and teaching the students thus making them a successful individual.

The main office: The main offices in FSSK are evaluated according to the different school in the faculty. There are six schools in FSSK they are The School of Language Studies and Linguistics Studies (PPBL), School of Malay Languages, Literature and Culture Studies (PPBKKM), School of Media and Communication Studies (PPMK), School of Psychology and Human Development Studies (PPPPM), School of Social, Development and Environment Studies (PPSPP) and School of History,

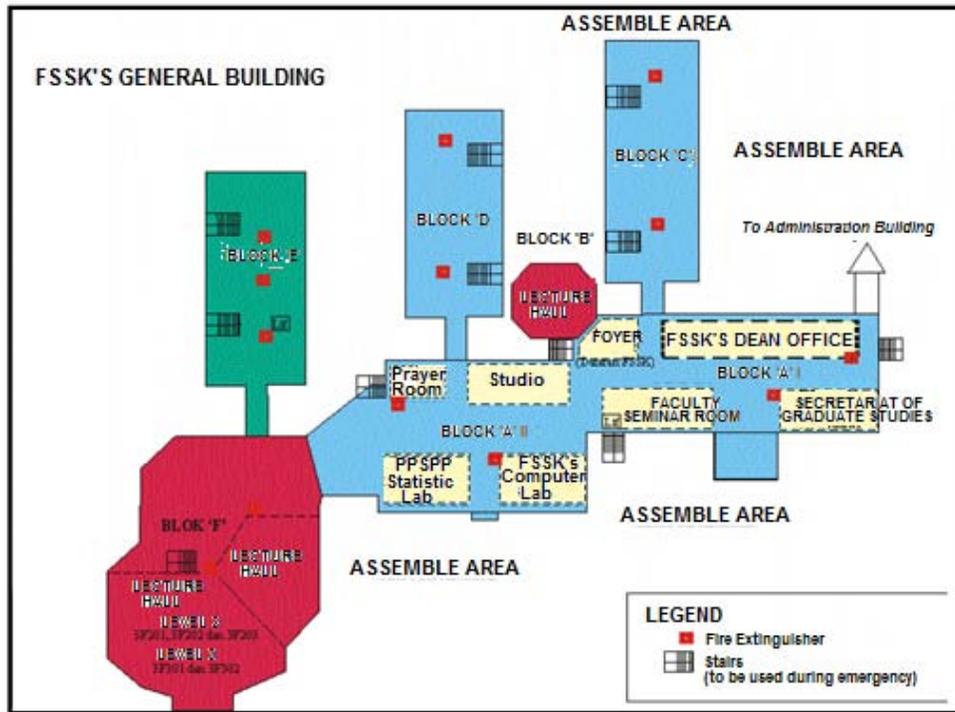


Fig. 3: FSSK's blocks safety ranking

Table 2: FSSK's lecturer rooms safety indicator

Criteria	Maximum score	Obtained score						
		Block A1	Block AII	Block B	Block C	Block D	Block E	Block F
Lighting	16	12.0	12.0	4	15.0	14.0	14.0	13.0
Floor	12	12.0	12.0	3	12.0	12.0	12.0	12.0
Ventilation	8	6.0	6.0	2	7.0	6.0	7.0	7.0
Ceiling	12	11.0	11.0	3	12.0	11.0	11.0	11.0
Window	12	10.0	10.0	3	11.0	11.0	11.0	11.0
Door	16	12.0	12.0	4	13.0	13.0	12.0	12.0
Fire detector device	12	10.0	10.0	3	10.0	10.0	10.0	10.0
General arrangement	8	6.0	6.0	2	7.0	6.0	7.0	6.0
Total score	96	79.0	79.0	24	87.0	83.0	84.0	82.0
Percentage	100	82.3	82.3	25	90.6	86.5	87.5	85.4

Table 3: FSSK main offices safety indicator

Criteria	Maximum score	Obtained score					
		PPSPP	PPBL	PPBKKM	PPMK	PPPPM	PPSPS
Lighting	16	14.0	12.0	14.0	14.0	13.0	12.0
Floor	12	12.0	12.0	9.0	11.0	11.0	11.0
Ventilation	8	7.0	6.0	6.0	6.0	6.0	6.0
Ceiling	12	11.0	11.0	11.0	11.0	10.0	11.0
Window	12	12.0	12.0	10.0	12.0	11.0	11.0
Door	16	12.0	12.0	12.0	12.0	12.0	12.0
Fire detection device	12	11.0	8.0	11.0	10.0	10.0	10.0
General arrangement	8	7.0	6.0	6.0	7.0	7.0	6.0
Fire extinguisher	36	34.0	34.0	32.0	32.0	32.0	32.0
Total score	132	120.0	113.0	111.0	115.0	112.0	111.0
Percentage	100	90.9	85.6	84.1	87.1	84.8	84.1

Politics and Strategy (PPSPS). The scores shown in Table 3 enable one to identify which main offices should be given due attention in order to improve and

maximize its level of safety. This is because each main office plays an important role as a driving force to each study center.

It also plays a role as a place for teaching staff, general staff and students interact. As such aspects and the criteria of OSH that is still unsatisfactory such as general arrangement need to be rearranged such that it will not obstruct the emergency exit the ventilation system must be clean and free of dust that can cause allergies and discomfort for the staff.

Figure 4 shows the significant differences among the main offices in FSSK. These differences indicate that the areas have some inadequacies and are susceptible to danger. The focus of safety in each schools main office should be coordinated with other facilities based on guidelines established by the employer.

The deanery office: Assessment made at the deanery office and graduates office in FSSK is based on criteria in the occupational safety and health audit checklist. Studies conducted in the Dean office recorded a score of 114 points which is equivalent to 78.7% and the graduate office gets 111 points which is equivalent to 72.2% of the maximum score of 132 points as shown in Table 4. The score shows the Deanery office is categorized as very safe while graduate office is categorized as safe. Several items have been identified as the cause to the graduate office having a low score points.

Among them is the number and availability of fire extinguishers, fire extinguishers sign and easy access to fire extinguisher are still low. Similarly, furniture arrangement and things that obstruct the exit passage in the event of an emergency. Office administration should implement all OSH criteria to the fullest because the employers are accountable.

Comparison of safety and health level in FSSK by block:

Total scores in Table 5 shows there are differences in OSH level for each block in FSSK. C block earned the highest average score of 85.2%. This shows that C block is a very safe place and followed by blocks AI and AII (81.6%), blocks D (81.2%) and E blocks (80%). While the F block is in save condition where the average score obtained was 77.5%. Based on the total score, C block has security features that are good and almost meet the required safety criteria. This may be because it is an area where most of the employees and the administration are

stationed. However, safety aspects in other areas should be enhanced so that the whole of FSSK’s blocks will have a very safe environment.

Comparison of occupational safety and health level among difference areas in FSSK: The scores shown in Table 6 indicate that each area has a difference safety level comparatively. The common offices get the highest score of 86.1% thus categorized as very safe. Other areas that are also categorized as very safe are the lecturer rooms with the average score of 77.1% and the deanery and graduate office with the average score of 75.5%. Areas that are categorized as safe are the common building with the average score of 72.7% and laboratory and workshop with the score of 63.4%.

Based on the stipulated percentage scores, the common offices have good safety features and have met nearly all the required safety criteria. It may be because it is an area where most of the employees and the administration are stationed.

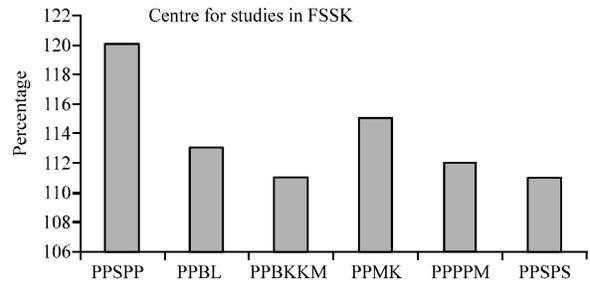


Fig. 4: FSSK’s main offices safety level percentage score

Table 4: FSSK safety indicator at the deanery and graduate office

Criteria	Maximum score	Score obtained	
		Deanery office	Graduate office
Lighting	16	14.0	14.0
Floor	12	10.0	10.0
Ventilation	8	7.0	7.0
Ceiling	12	11.0	11.0
Window	12	12.0	12.0
Door	16	12.0	12.0
Fire detection device	12	10.0	10.0
General arrangement	8	6.0	5.0
Fire extinguisher	36	32.0	30.0
Total score	132	114.0	111.0
Percentage	100	78.7	72.2

Table 5: Safety level percentage score of FSSK’s blocks

Areas	Percentage score						
	Block A1	Block AII	Block B	Block C	Block D	Block E	Block F
General building	75.0	75.0	72.9	-	-	-	67.8
Store	80.0	79.4	25.0	84.4	81.1	79.4	79.4
Laboratory and workshop	89.0	89.0	25.0	80.5	76.0	73.0	25.0
Lecturer’s office	82.3	82.3	25.0	90.6	86.5	87.5	85.4
Average score	81.6	81.4	72.9	85.2	81.2	80.0	77.5

Table 6: Safety level percentage score of FSSK's blocks

Area/Block	Percentage
Common building	
Block AI	75.0
Block AII	75.0
Block B	72.9
Block F	67.8
Average score	72.7
Common/main office	
PPSPP	90.9
PPBL	85.6
PPBKKM	84.1
PPMK	87.1
PPPPM	84.8
PPSPS	84.1
Average score	86.1
Lecturer's rooms	
Block AI	82.3
Block AII	82.3
Block B	25
Block C	90.6
Block D	86.5
Block E	87.5
Block F	85.4
Average score	77.1
Laboratory and workshop	
Block AI	89.0
Block AII	89.0
Block B	25.0
Block C	80.5
Block D	76.0
Block E	73.0
Block F	25.0
Average score	63.4
Deanery and graduate office	
Deanery office	78.7
Graduate office	72.2
Average score	75.5

CONCLUSION

The overall level of occupational safety and health at FSSK is at safe level and to ensure that this level is at least maintained if not improved, the employer should keep adhering to regulations and should provides safe infrastructures and safe equipments to avoid accident at workplace. Accidents at workplace especially at FSSK can be circumvented with the cooperation of all parties concerned. A proper equipments care and use can avoid unwanted circumstances such as slipped, crushed by falling ceiling, fell because of perforated floor and so on. Emergency actions training may also be given to staff and students so they know the proper procedures they should take in case of emergency and accident.

Finally, it can be seen that the safety audit can be used as a tool to monitor and at the same time lower the accident rate at workplace. Compliance and monitoring audit can further ensure safety at workplace. Safety at work as a good practice should continue to be practiced

and thus become a culture to every citizen in FSSK. Besides audit program, FSSK or UKM can implemented OHSAS 18001 or Integrated Management System included OHSAS 18001, ISO 14001 and ISO 9001 to prevent the number of incidence or accident at the workplace. The implementation from this programs can give some benefit to organization (Arifin *et al.*, 2009; Azahan *et al.*, 2009).

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