



**OCCUPATIONAL FRAMEWORK
SECTION C: MANUFACTURING
DIVISION 31: MANUFACTURE OF FURNITURE**

Department of Skills Development
Ministry of Human Resources, Malaysia

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ABSTRACT

An Occupational Framework (OF) is the outcome of the analysis conducted in identifying the work scope of the occupational areas in terms of competencies. It is used to analyse skilled manpower competency requirements for the industry. The OF aims to provide an overall view of the industry's Occupational Structure (OS) and identify skills gaps, critical job titles and Occupational Descriptions (OD) that would assist in further understanding the job requirements of the various occupations in the industry. Department of Skills Development (DSD) is the custodian of this document, where the OF identified the suitable occupational areas which either require development of skills training programmes or the review and enhancement of existing skills training programmes. The OF for Manufacture of Furniture are based on the 2 digits Malaysia Standards Industrial Classification 2008 (MSIC 2008) under Section C – Manufacturing, Division 31 – Manufacture of Furniture. This document is divided into several chapters, Chapters 1 includes the objectives, scope and justification of the OF development for the Manufacture of Furniture. Chapter 2 includes the industry overview highlighting the definition and scope of the industry, stakeholders, legislation, initiatives and market intelligence of the industry. Chapter 3 explained the methodology used in the OF development such as qualitative analysis through Focus Group Discussion (FGD) sessions. Chapter 4 discussed the findings from the FGD conducted that be translated into the Occupational Structure, Occupational Description, Jobs in Demand, Skills in Demand and Emerging Skills. Lastly, Chapter 5 concluded the total number of job area identified which is 48 with 191 job titles and 24 job titles identified as critical job titles and also recommended the National Occupational Skills Standard (NOSS) or National Competency Standard (NCS) that should be developed based on the jobs in demand identified in this OF and the skills in demand plus emerging skills that should be included in the NOSS and skills training curriculum under DSD.

ABSTRAK

Kerangka Pekerjaan (OF) adalah hasil analisis yang dijalankan dalam mengenalpasti skop kerja bidang kerja dari segi kompetensi. Ia digunakan untuk menganalisis keperluan kecekapan tenaga kerja mahir untuk industri. OF bertujuan untuk memberikan pandangan keseluruhan mengenai Struktur Pekerjaan (OS) industri dan mengenalpasti jurang kemahiran, jawatan pekerjaan kritikal dan Deskripsi Pekerjaan (OD) yang akan membantu dalam memahami lagi keperluan kerja pelbagai pekerjaan dalam industri. Jabatan Pembangunan Kemahiran (JPK) adalah jabatan yang bertanggungjawab dalam membangunkan dokumen ini, di mana OF mengenal pasti bidang pekerjaan yang sesuai sama ada memerlukan pembangunan program latihan kemahiran atau kajian semula dan peningkatan program latihan kemahiran yang sedia ada. Pembuatan Perabot adalah berdasarkan Klasifikasi Perindustrian Piawai Malaysia 2008 (MSIC 2008) di bawah Seksyen C - Pembuatan, Bahagian 31 – Pembuatan Perabot. Dokumen ini dibahagikan kepada beberapa bab iaitu, Bab 1 merangkumi objektif, skop dan justifikasi pembangunan untuk Pembuatan Perabot. Bab 2 merangkumi gambaran industri yang menonjolkan definisi dan skop industri, pihak berkepentingan, perundangan, inisiatif dan kecerdasan pasaran. Bab 3 menjelaskan metodologi yang digunakan dalam pembangunan seperti analisis kualitatif melalui sesi perbincangan berkumpulan. Bab 4 membincangkan penemuan dari perbincangan kumpulan fokus yang diterjemahkan ke dalam Struktur Pekerjaan, Deskripsi Pekerjaan, Pekerjaan Yang Diperlukan, Kemahiran Yang Diperlukan dan Kemahiran Baru Muncul. Akhirnya, Bab 5 menyimpulkan jumlah bidang kerja yang dikenalpasti adalah 48 bidang dengan 191 jawatan pekerjaan dan 24 jawatan pekerjaan yang dikenalpasti sebagai jawatan pekerjaan kritikal dan juga mengesyorkan Standard Kemahiran Pekerjaan Kebangsaan (SKPK) atau Standard Kompetensi Kebangsaan (SKK) yang perlu dibangunkan berdasarkan permintaan pekerjaan yang dikenal pasti di dalam OF ini. Selain daripada itu, kemahiran baru juga dikenalpasti untuk dimasukkan ke dalam kurikulum latihan SKPK dan kemahiran di bawah JPK.

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LIST OF ABBREVIATIONS

ACA	Automation Capital Allowance
APEL	Accreditation of Prior Experiential Learning
B40	Bottom 40%
BSN	Bank Simpanan Nasional
CBT	Competency Based Training
CGC	Credit Guarantee Corporation
CNC	Computer Numerical Control
COL	Critical Occupational List
CSIL	Centre for Industrial Studies
DACUM	Developing a Curriculum
DoSM	Department of Statistics Malaysia
DSD	Department of Skills Development
FGD	Focus Group Discussion
FRIM	Forest Research Institute of Malaysia
FRIM PCS	FRIM Product Certification Services
GE14	14 th General Election
ISIC	International Standard Industrial Classification
KPDNHEP	Ministry of Domestic Trade and Consumer Affairs
M40	Middle 40%
MARA	Majlis Amanah Rakyat
MASCO	Malaysia Standard Classification of Occupations
MATRADE	Malaysia External Trade Development Corporation
MDF	Medium Density Fibreboard
MEA	Ministry of Economic Affairs
MECD	Ministry of Entrepreneur and Cooperative Development
MECIB	Malaysian Export Credit Insurance Berhad
MED	Ministry of Entrepreneur Development (MED)
MFC	Malaysian Furniture Council
MFIC	Malaysian Furniture Industry Council
MIDA	Malaysian Investment Development Authority
MIDF	Malaysian Industrial Development Finance Berhad

LIST OF ABBREVIATIONS

MITI	Ministry of Industry and International Trade
MoF	Ministry of Finance
MoHR	Ministry of Human Resources
MOSQF	Malaysian Occupational Skills Qualification Framework
MPI	Ministry of Primary Industry
MPIC	Ministry of Plantation Industries and Commodities
MPOB	Malaysian Palm Oil Board
MQA	Malaysia Qualification Agency
MRB	Malaysian Rubber Board
MSC	Malaysian Skills Certificate
MSIC 2008	Malaysia Standard Industrial Classification 2008
MTC	Malaysian Timber Council
MTDC	Malaysian Technology Development Corporation
MTIB	Malaysian Timber Industry Board
NATIP	National Timber Industry Policy
ODM	Original Design Manufacturer
OEM	Original Equipment Manufacturer
OF	Occupational Framework
OD	Occupational Description
OS	Occupational Structure
PEKA	Bumiputera Timber Furniture Association of Malaysia
PETRA	Bumiputera Furniture Industry Association of Malaysia
PPC	Production Planning and Control
QA	Quality Assurance
SME	Small and Medium-sized Enterprises
SMIDEC	Small And Medium Industries Development Corporation
STPM	Sijil Tinggi Pelajaran Malaysia
TVET	Technical and Vocational Education and Training
WISDEC	Wood Industry Skills Development Centre

LIST OF GLOSSARY

3R	Basic skills taught in schools: reading, writing and arithmetic.
Bill of Materials	A list of parts or items that make up a product assembly. A complete product BOM often includes sub-assemblies, which may represent different steps in the assembly process.
Computer Aided Design	The use of a wide range of computer-based tools that assist engineers, architects, and other design professionals in their design activities to create physical designs, usually three-dimensional.
Computer Numerical Control	The digital control of a physical machine that consists of a series of integrated actuators, power electronics, sensors, and dedicated computer running under a real-time operating system. CNC can control multiple machines, usually when they are grouped in a manufacturing cell. This is a form of digital automation.
Injection moulding	A manufacturing process for producing parts by injecting molten material into a mould.
Lacquer	A synthetic, durable fast drying coating used to finish and protect.
Lamination	The process of bonding or gluing together layers of wood or wooden panels with laminates. The final product may also be referred to as a laminate wood or laminated panel.
Medium Density Fibreboard	An engineered wood panel made from wood fibres and adhesive exposed to heat and pressure.
Metal Fabrication	The creation of metal structures by cutting, bending and assembling processes. It is a value-added process involving the creation of machines, parts, and structures from various raw materials.
Particleboard	Also known as chipboard – is an engineered wood product manufactured from wood chips, sawmill shavings, or even sawdust, and a synthetic resin or other suitable binder, which is pressed and extruded.

LIST OF GLOSSARY

Plywood	A material manufactured from thin layers or "plies" of wood veneer that are glued together with adjacent layers having their wood grain rotated up to 90 degrees to one another.
Production Planning and Control	A predetermined process which includes the use of human resource, raw materials, machines and to take the right decision at the right time and at the right place to achieve maximum efficiency.
Prototype	An engineering-quality sample build of a product, typically intended to test high-risk aspects of the design.
Quality Assurance	The maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production.
Rough milling	A process of making a piece of timber flat and square so it can then be made into furniture.
Sand Blasting	The operation of forcibly propelling a stream of abrasive material against a surface under high pressure to smooth a rough surface, roughen a smooth surface, shape a surface or remove surface contaminants.
Standard Operating Procedure	A written document or instruction detailing all steps and activities included in a process or procedure.
Tooling	Hardware (or software) that is developed specifically for a part so that a when that tool is inserted into a general-purpose machine, that machine will produce or shape that part uniquely.
Upholstery	The covering including padding, springs, webbing, foam and fabric on furniture.
Webbing	Strips of elastic or woven fabric use to provide support for upholstered arm, back and seat of chair.

LIST OF GLOSSARY

Welding	The process by which two metals or materials are joined by heat or pressure most often resulting in melting of the materials.
Wicker	Term given to furnishing of woven from willow, reed or rattan.
Work in Process	Inventory consisting of products that are in a semi-finished state. Work in process is valued at the cost of the purchased material plus the cost of manufacturing up to the stage of completion at the time that the inventory is valued.

CHAPTER 1: INTRODUCTION

1.1 Introduction

Malaysia being blessed with tropical rainforests, which encompass between 59 per cent to 70 per cent of Malaysia's total land area that have abundant natural wood resources for the furniture manufacturing industry. The effectiveness of the industry can further expatiate with high technology content. This will be in line with Industry 4.0 developing Malaysia towards a developed nation by 2020. According to Third Industrial Master Plan (IMP3) 2006 – 2020, Malaysia inspired to attain long-term global competitiveness through transformation and innovation investments in the industry is targeted to intensify the usage of non-conventional raw materials such as agricultural wastes, bamboo, rattan and kenaf. Although European and other First World nations demand for sustainable green and eco-friendly products, Research and Development in the area is significant. Ranked as the eighth largest exporter of furniture in the world, Malaysia's main overseas markets are the USA, EU, Japan, and Australia. The industry comprises over 3,500 mostly locally-owned companies that are concentrated in Johor, Selangor, and Pulau Pinang. Although automation and Industry 4.0 in this sector has been slow to take off, it is expected that 6.4 per cent growth for timber exports yearly with estimation to be worth RM53 billion by 2020. Malaysia in 2017 exported RM23.2 billion worth of wood and wood products, primarily consisting of furniture and timber products¹.

1.2 Problem Statement

Previous study was in association with production of the National Occupational Skills Standard (NOSS) documents which form as the foundation for this study. In this industry, innovation and research and development would benefit the industry players. However, National Occupational Skills Standard (NOSS) will not be suffice as it only underlined desirable competencies of employee and pathway in the various occupational sector.

¹ Source from National Timber Industry Policy (NATIP) 2009 - 2020

In recognition of the importance of the industry in preparation for Industry 4.0 and efforts to accelerate the achievement of the National Timber Industry Policy (NATIP) by 2020, further investigation is required. Occupational Analysis (OA) for Wood Based Industry has been developed in 2008. Wooden furniture was defined as one of the sub-sectors of Wood Based Industry. The development of Occupational Structure (OS) and Occupational Description (OD) was developed for wooden furniture manufacture only, but not for metal, plastic or other materials. Therefore, this study is expected to provide further clarity about the industry acumen on OS, OD, skills in demand, job titles, competency level and identification of the critical tasks required in the job classification corresponds to the development of the future NOSS based on Malaysia Standard Industrial Classification 2008 (MSIC 2008) sections and divisions.

1.3 Objective of Study

In general, the main objective of this study is to propose OS, OD, demand for the skills, jobs title, and critical tasks skills level in Manufacture of Furniture industry.

Specifically, the objectives of the study are as follows:

- a) To produce Occupational Structure (OS) for Manufacture of Furniture Industry based on MSIC 2008;
- b) To investigate the competency in demand in the Manufacture of Furniture Industry;
- c) To identify critical jobs in for the Manufacture of Furniture Industry;
- d) To identify jobs title related to Industry 4.0 in Manufacture of Furniture Industry; and
- e) To establish Occupational Descriptions (OD) for each job title based on latest industry OS.

1.4 Scope of Study

This study is based on organisational level where only senior management personnel in Manufacture of Furniture industry players in all over Malaysia will be chosen as the target

respondent. Both qualitative and quantitative research method will be utilised in this study. Data will be collected through document analysis, focus group discussion and field survey methodology. The companies chosen as the target respondent will only be those that are registered with Suruhanjaya Syarikat Malaysia (SSM). It was reported that about 3,013 companies registered under C310 - Manufacture of Furniture from all over Malaysia. Manufacture of Furniture industry is in tandem with description of Division 31 under Section C in MSIC 2008. This division includes the following activities of providing expertise in the field of furniture manufacturing such as manufacture of furniture of any kind, any material (except stone, concrete or ceramic) for any place and various purposes.

In the initial stage, this study will embark by reviewing of documents available in trade journals, published government reports and relevant articles. This is being followed by focus group interviewing the pertinent senior industry representatives to gain insight of the industry and to further develop the survey instrument items that will be employed in the field study.

1.5 Justification for Malaysia Standard Industrial Classification 2008 (MSIC 2008) Section Selection

According to Malaysia Standard Industrial Classification 2008 Ver. 1.0 by Department of Statistics Malaysia, the Manufacture of Furniture Industry is in tandem with description of 2 digits MSIC 2008 Division 31: Manufacture of furniture, under 1 digit MSIC 2008 Section C: Manufacturing. This division had spelled activities related to providing expertise in the field of furniture manufacturing such as manufacture of furniture of any kind, any material (except stone, concrete or ceramic) for any place and various purposes.

1.6 Structure of Chapter

This chapter concludes with a brief overview of the entire study, which includes:

- a) In chapter 1, this chapter explains about research introduction which consist of introduction, problem statement, research objective, research scope and justification for MSIC 2008 Section Selection.
- b) In chapter 2, this chapter provides a literature review about the research that give a further understanding about the research purpose.
- c) In chapter 3, this chapter explains about the overall approach of the study and method deployed to achieve objective of the study.
- d) In chapter 4, this chapter shows the results and finding on the research based on the approach and method deployed in this chapter.
- e) In chapter 5, this chapter explains about the discussion, summary and conclusion on the research done. Besides that, recommendations from the expert in the industry are also listed here.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter emphasises on the explanation of the Manufacture of Furniture industry focusing on the current scenario in Malaysia, introduction to government policies, development plans, government bodies and competitiveness at the international level.

Findings in this chapter are obtained via documents review, observation, interviews with industry practitioners and discussions during workshops with Focus Group Discussion (FGD) panel members. This literature review has been further discussed with FGD panel members to obtain insight on the matters at hand from the practitioner's perspective.

2.1.1 National Skills Development Act 2006 (Act 652)

The National Skills Development Act 2006 (Act 652) came into effect on 1st September 2006 after it was officially gazetted on 29th June 2006, with the mandate of promoting, through skills training, the development and improvement of a person's abilities, which are needed for vocation, and to provide for other matters connected therewith. The Act 652 is significant because for the first time in the history of skills training in Malaysia, a national legislation has been enacted solely and exclusively for skills training and development. In addition, the meaning and scope of skills training has been clarified and given a statutory interpretation that can be used to distinguish it from other components of the country's national education and training system. Act 652 also provides for the implementation of a Malaysian Skills Certification System, leading to the award of five (5) levels of national skills qualification, namely Malaysian Skills Certificate Level 1, 2 and 3; Malaysian Skills Diploma; and Malaysian Skills Advanced Diploma.

2.1.2 Malaysian Qualification Framework (MQF)

The Malaysia Qualification Framework (MQF) refers to the policy framework that satisfies both the national and international recognized qualifications. It comprises titles and guidelines, together with principles and protocols covering articulation and issuance of qualifications and statements of attainment. Element of qualification framework indicates the achievement for each qualification title. It will also provide progression routes for all the graduates in the respective occupational fields.

The MQF 2nd Edition² has eight levels of qualification in three sectors and supported by lifelong education pathways as shown in the Table 2.1. DSD governs the skills sector, in which there are five (5) levels of skills qualification. The definition for each level of skills qualification is specified in Malaysian Occupational Skills Qualification Framework (MOSQF) and can be referred in Annex 1. MOSQF describes the skills qualifications awarded by the Malaysian Skills Certification System. A trainee equipped with required competencies as prescribed in the Standards will be entitled to obtain qualifications as stated in the MOSQF.

Table 2.1: Malaysian Qualification Framework (MQF) Chart

(Source: Malaysian Qualification Framework 2nd Edition)

MQF Level	Minimum Graduating Credit	Academic Sector	TVET Sector	Lifelong Learning/APEL Criteria for APEL(A)
8	No credit rating	PhD by Research		Admission criteria: 35 years old Bachelor's degree in relevant field/equivalent 5 years of work experience Passed APEL assessment
	80	Doctoral Degree by Mixed Mode & Coursework		
7	No credit rating	Master's by Research		Admission criteria: 30 years old STPM/Diploma/equivalent Relevant work experience Passed APEL assessment
	40	Master's by Mixed Mode		

² Malaysian Qualification Agency. 2018. Malaysian Qualification Framework 2nd Edition.

MQF Level	Minimum Graduating Credit	Academic Sector	TVET Sector	Lifelong Learning/APEL Criteria for APEL(A)
		& Coursework		
	30	Postgraduate Diploma		
	20	Postgraduate Certificate		
6	120	Bachelor's degree		Admission criteria: 21 years old Relevant work experience Passed APEL assessment
	66	Graduate Diploma		
	36	Graduate Certificate		
5	40	Advanced Diploma	5	
4	90	Diploma	4	Admission criteria: 20 years old Relevant work experience Passed APEL assessment
3	60	Certificate	3	Admission criteria: 19 years old Relevant work experience Passed APEL assessment
2	30	Certificate	2	3R
1	15	Certificate	1	3R

2.1.3 Occupational Framework (OF)

The Occupational Framework (OF) is described as the outcome of the occupational analysis process to identify the occupational structure of an industry. The OF which was previously known as Occupational Analysis (OA) consists of Occupational Structure (OS), Occupation Description (OD) and Skills in Demand.

The development of the OF is a preliminary process in developing relevant NOSS. Once developed, the NOSS can be used as the basis to conduct skills training and skills certification of competent personnel.

2.1.4 National Occupational Skills Standard (NOSS)

National Occupational Skills Standard (NOSS) is defined as a specification of the competencies expected of a skilled worker who is gainfully employed in Malaysia for an occupational area, level and pathway to achieve the competencies and is gazetted in Part IV of National Skills Development Act 652. NOSS is developed by the industry experts based on the needs of the industry and is utilized as the main tool in the implementation of Malaysian Skills Certification System in which the performance of existing industry workers and trainees are assessed based on NOSS for awarding of Malaysian Skills Certificate. Certification is given through accredited by centre of accreditation, dual national training schemes and recognition of past achievements.

2.1.5 Competency Based Training (CBT)

Competency Based Training (CBT) is an approach to vocational training that emphasises what a person can actually do in the workplace as a result of education and training³. CBT is based on performance standards which are set by the industry with main focus on measuring the performance while considering knowledge and attitude rather than the duration taken to complete the course. CBT is a learner-centric; outcome-based approach to training which allows each individual to develop skills at their own pace for a similar outcome, thus meaning training practices can be customised for each individual to achieve a similar outcome. CBT concept is the basis of Malaysian Skills Certification system which is coordinated by DSD.

2.2 Scope of Occupational Framework Based on MSIC 2008

This section provides the details of MSIC 2008 scope on the Manufacture of Furniture industry. The definition of MSIC 2008 and title selection criteria are explained in this section.

³ Barry Porter, Developing Competency Based Curriculum Modules: A Guidebook for TAFE Teachers and Curriculum Writers (Sydney, NSW TAFE Commission, 1993), iii.

2.2.1 Malaysia Standard Industrial Classification 2008 (MSIC 2008) Definition

The MSIC 2008 is a standard classification of productive economic activities. Its main purpose is to provide a set of activity categories that can be utilised for the collection and presentation of statistics according to such activities. Therefore, MSIC 2008 aims to present these set of activity categories in such a way that entities can be classified according to the economic activity that they carry out. For purposes of international comparability, the MSIC 2008 Version 1.0 conforms closely to the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4, published by the United Nations Statistics Division, with some modifications to suit national requirements. The objective of an industrial classification system is to classify data in respect of the economy according to categories of activities and the characteristics of which will be similar. The MSIC 2008 is a classification of all types of economic activities and is not a classification of goods & services nor is it a classification of occupations⁴.

2.2.2 Title Selection Criteria

This research will focus only on the Manufacture of Furniture industry. The definition of the research area will be aligned with MSIC 2008. Based on MSIC 2008, the definition and scope of coverage for the Occupational Framework is as Table 2.2 below.

Table 2.2: Summary of MSIC 2008 Section, Division and Group
(Source: MSIC 2008)

Section	C	Manufacturing
Division	31	Manufacture of furniture
Group	310	Manufacture of furniture

However, manufacture of furniture for ceramics, concrete and stone is defined under the 2 digits MSIC 2008 Division 23: Manufacture of other non-metallic mineral products. The following Table 2.3 is an excerpt taken from MSIC 2008 to illustrate the detail scope of this Occupational Framework.

⁴ Department of Statistics Malaysia. (2008). Malaysia Standard Industrial Classification 2008 Ver. 1.0.

Table 2.3: Description of MSIC 2008 classification for Section C, Division 31
(Source: MSIC 2008)

Classification	Code	Description
Section	C	Manufacturing
Division	31	Manufacture of furniture
Classification	Code	Description
Group	310	<p>Manufacture of furniture</p> <p>This group includes the manufacture of furniture of any kind, any material (except stone, concrete or ceramic) for any place and various purposes.</p>
Class	3100	<p>Manufacture of furniture</p> <p>Includes:</p> <ul style="list-style-type: none"> (a) manufacture of chairs and seats for office, workrooms, hotels, restaurants, public and domestic premises (b) manufacture of chairs and seats for theatres, cinemas and the like (c) manufacture of sofas, sofa bed and sofa sets (d) manufacture of garden chairs and seats (e) manufacture of special furniture for shops (e.g. counters, display cases, shelves, etc.) (f) manufacture of office furniture (g) manufacture of kitchen furniture (h) manufacture of furniture for bedrooms, living rooms, garden, etc. (i) manufacture of cabinets for sewing machines, television, etc. (j) manufacture of laboratory benches, stools, and other laboratory seating, laboratory furniture (e.g. cabinets and tables) (k) manufacture of furniture for churches, school, restaurants

Classification	Code	Description
		<p>(l) finishing (e.g. upholstery of chairs and seats)</p> <p>(m) finishing of furniture such as spraying, painting, French polishing and upholstering</p> <p>(n) manufacture of decorative restaurant carts (e.g. desert cart, food wagon)</p> <p>(o) manufacture of wood partitions, free standing</p> <p>Excludes:</p> <p>(a) manufacture of pillows, pouffes, cushions, quilts and eiderdowns, see 13921</p> <p>(b) manufacture of inflatable rubber mattresses, see 22199</p> <p>(c) manufacture of furniture of ceramics, concrete and stone, see 2393, 2395, 2396</p> <p>(d) manufacture of lighting fittings or lamps, see 2740</p> <p>(e) manufacture of blackboards, see 2817</p> <p>(f) manufacture of car seats, railway seats, aircraft seats, see 2930, 3020, 3030</p> <p> a) modular furniture attachment and installation, partition installation, laboratory equipment furniture installation, see 4330</p>
Item	31001	Manufacture of wooden and cane furniture
Item	31002	Manufacture of metal furniture
Item	31003	<p>Manufacture of mattress</p> <p>Includes:</p> <p>(a) manufacture of mattresses fitted with springs or stuffed or internally fitted with a supporting material</p> <p>(b) manufacture of uncovered cellular rubber or plastic mattresses</p> <p>manufacture of mattresses support</p>

Classification	Code	Description
Item	31009	Manufacture of other furniture, except of stone, concrete or ceramic

2.3 Key Stakeholders

The key stakeholders for Manufacture of Furniture industry in Malaysia consist of government agencies, regulatory bodies, industry associations and professional bodies. Stakeholder is defined as a person, group or organisation that has interest or concern in an organisation. Stakeholders can affect or be affected by the organisation's actions, objectives and policies.

2.3.1 Government Agencies and Regulatory Bodies

There are eleven Government Agencies that are empowered by the legislations according to the scope and powers given in the related acts that directly regulates the Manufacture of Furniture industry in Malaysia. The related Government Regulatory and Statutory Bodies are listed in the following Table 2.4.

Table 2.4: List of Government Agencies and Regulatory Bodies for Manufacture of Furniture Industry

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
1.	Ministry of Primary Industry (MPI)	In 2018, the Ministry of Primary Industries (MPI) re-branded the name of the Ministry of Plantation Industries and Commodities (MPIC). The main functions of the Ministry are to formulate policies and strategies for the overall development of the plantation and the commodity sectors and to supervise departments and agencies under the Ministry on financial management and implementation of plantation and commodities development programs. The 6 statutory bodies/agencies

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		under the Ministry are Malaysian Rubber Board (MRB), Malaysian Palm Oil Board (MPOB), Malaysian Timber Industry Board (MTIB), National Tobacco Board (NTB), Malaysian Cocoa Board (MCB) and Malaysian Pepper Board (MPB).
2.	Ministry of Finance (MoF)	<p>Ministry of Finance is responsible⁵:</p> <ul style="list-style-type: none"> a) To formulate and implement fiscal and monetary policies in order to ensure effective and efficient distribution and management of financial resources. b) To formulate financial management and accounting processes, procedures and standards to be implemented by all Government. c) To manage the acquisition and disbursement of Federal Government loans from domestic and external sources. d) To ensure the Minister of Finance Incorporated companies are managed effectively. e) To monitor the financial management of Ministries, Government Departments and Statutory Bodies. f) To formulate and administer policies related to the management of Government procurement. g) To formulate policies and administer Government housing loans for public sector employees.

⁵ Ministry of Finance (MoF). (2019, June 25). Retrieved from <http://www.treasury.gov.my/?lang=en>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
3.	Ministry of Industry and International Trade (MITI)	<p>The Ministry of Commerce and Industry was established in April 1956 and situated in Government Office, Jalan Raja.</p> <p>The Ministry was then renamed the Ministry of Trade and Industry in February 1972⁶. The Ministry of Industry and International Trade (MITI) is responsible:</p> <ul style="list-style-type: none"> a) To plan, formulate and implement policies on industrial development, international trade and investment. b) To encourage foreign and domestic investment. c) To promote Malaysia's exports of manufacturing products and services by strengthening bilateral, multilateral and regional trade relations and cooperation. d) To enhance national productivity and competitiveness in the manufacturing sector. <p>MITI is also responsible for supervising MATRADE. MATRADE's mission to promote Malaysia's export has enabled many local companies to carve new frontiers in global markets.</p>
4.	The Ministry of Domestic Trade and Consumer Affairs (KPDNHEP)	<p>The Ministry of Domestic Trade and Consumer Affairs was established on 27 October 1990. The objectives of the Ministry are to promote the development of a viable, competitive and sustainable domestic economy, specifically in the Distributive Trade Sector⁷.</p> <p>KPDNHEP also involves in Price Control and Anti-Profitteering (Mechanism to Determine Unreasonably</p>

⁶ Ministry of Industry and International Trade (MITI) (2019, June 25). Retrieved from <https://www.miti.gov.my>

⁷ The Ministry of Domestic Trade and Consumer Affairs (KPDNHEP). (2019, June 25). Retrieved from <https://www.kpdnhep.gov.my/about-kpdnkk-2/?lang=en>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		High Profit for Goods) Regulations 2016 to act upon the profiteering activity.
5.	Ministry of Economic Affairs (MEA)	The Ministry of Economic Affairs is a new ministry and was set up on May 12, 2018, after the 14 th General Election (GE14). The Ministry took over the major roles and functions previously implemented by the Economic Planning Unit (EPU) under the Prime Minister's Department ⁸ .
6.	Ministry of Entrepreneur Development (MED)	<p>Ministry of Entrepreneur Development (MED) is responsible:</p> <ul style="list-style-type: none"> a) To formulate an SME and entrepreneurship development policy that are inclusive and competitive, including driving the development of the B40s, M40s and social entrepreneurs. b) To coordinate the Bumiputra equity ownership policy. c) To assume the role as facilitator to assist entrepreneurs and SMEs to set up their own business, including coordination of available funds for entrepreneurs and SMEs. d) To establish strategic partnership and cooperation with the private sector at Federal, State and international level. e) To plan and implement promotional and culturalisation activities on entrepreneurship and SMEs⁹.

⁸ Ministry of Economic Affairs (MEA) (2019, June 24). Retrieved from <https://www.mea.gov.my/en>

⁹ Ministry of Entrepreneur Development (MED) (2019, June 26). Retrieved from <http://www.med.gov.my/portal/index.php>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		f) To coordinate the development of SMEs and Bumiputra in strategic industries such as automotive, aerospace, renewable energy, digital economy and Halal.
7.	Ministry of Human Resources (MoHR)	The Ministry of Human Resources, abbreviated MoHR, is a ministry of the Government of Malaysia that is responsible for skills development, labour, occupational safety and health, trade unions, industrial relations, industrial court, labour market information and analysis, social security ¹⁰ .
8.	Malaysian Timber Industry Board (MTIB)	Malaysian Timber Industry Board (MTIB) is a federal statutory body responsible for the development of the timber industry of the country. In carrying out these responsibilities, MTIB took into account the human resource development as one of the critical elements that need to be addressed, so that the timber industry to enhance productivity, efficiency, quality, and have a value-added product. MTIB has established Wood Industry Skills Development Centre (WISDEC) in Banting, Selangor in 1995 and another in Kota Kinabalu, Sabah in 2005. WISDEC establishment is consistent with our objective to accelerate the transfer of technology and the processing of value-added wood products such as furniture, joinery and mouldings.

¹⁰ Ministry of Human Resources (MOHR) (2019, June 25). Retrieved from <https://www.mohr.gov.my/index.php/en>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
9.	Malaysian Investment Development Authority (MIDA)	<p>Incorporated as a statutory body under the Malaysian Industrial Development Authority (MIDA) Act, the establishment of MIDA in 1967 was hailed by the World Bank as “the necessary impetus for purposeful, positive and coordinated promotional action” for Malaysia’s industrial development. Today, MIDA’s is Malaysia’s cutting-edge, dynamic and pioneering force in opening pathways to new frontiers around the globe.</p> <p>MIDA assists companies which intend to invest in the manufacturing and services sectors, as well as facilitates the implementation of their projects. The wide range of services provided by MIDA include providing information on the opportunities for investments, as well as facilitating companies which are looking for joint venture partners¹¹.</p>
10.	Forest Research Institute of Malaysia (FRIM)	<p>The Forest Research Institute Malaysia is a statutory agency of the Government of Malaysia, under the Ministry of Land, Water and Natural Resources. FRIM promotes sustainable management and optimal use of forest resources in Malaysia by generating knowledge and technology through research, development and application in tropical forestry. FRIM Product Certification Services (FRIM PCS) was established in June 2013 and approved under the special powers of the Minister of Natural Resources and Environment on November 18, 2014 as an addition to the Malaysian</p>

¹¹ Malaysian Investment Development Authority (MIDA). (2019, June 24). Retrieved from <http://www.mida.gov.my/home/about-mida/posts/>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		<p>Forestry Research and Development Board Act 319 (1985). The main goals of FRIM PCS are:</p> <ul style="list-style-type: none"> a) To help the local industries to produce quality products consistently b) To ensure that the forest-based industry meet the required specifications and standards determined by the stakeholders and users, and To assist the wood-based furniture industry in manufacturing quality products that meet the standards as demanded by the local and international markets.
11.	Malaysian Timber Council (MTC)	<p>The Malaysian Timber Council (MTC) was established in January 1992 to promote the development and growth of the Malaysian timber industry. MTC was formed on the initiative of the timber industry and is governed by a Board of Trustees, whose members are appointed by the Minister of Primary Industries. Their objectives are:</p> <ul style="list-style-type: none"> a) To promote the Malaysian timber trade and develop the market for Malaysian timber products globally; b) To develop the timber industry by expanding the industry's manufacturing technology base and value-adding its production line; c) To augment the supply of raw materials for the timber-processing industry; d) To provide information services to the timber industry

2.3.2 Industry Associations and Professional Bodies

The industry associations and professional bodies are the organisations that are promoting their interests and facilitate close collaboration between their members of organisations especially from the Manufacture of Furniture industry towards strengthening the furniture industry in Malaysia. The list of industry associations and professional bodies is shown in Table 2.5.

Table 2.5: List of Related Industry Association and Professional Bodies for Manufacture of Furniture Industry

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
1.	Malaysian Furniture Council (MFC)	<p>The Malaysian Furniture Council (MFC) was formed by merging of Malaysian Furniture Industry Council (MFIC) and Malaysia Furniture Entrepreneur Association (MFEA) on 20th September 2014. The MFC represents the Malaysia's furniture industry players as a whole, which contributes significant amount of furniture exports. Its main objectives are:</p> <ul style="list-style-type: none"> a) To promote good relationship and co-operations among members inclusive all the associations and to improve the reputation and image of the furniture industry in the country. b) To promote better understanding and good relationship between the Association and other guilds and societies and government authorities. c) To promote the Malaysia Furniture industry to the international arena, in order to strengthen the national economy and to earn more foreign exchange. d) To represent the furniture industry in whatever discussion or negotiation with the Government about issues pertaining to the growth and development of

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		<p>the industry, including matters concerning import and export.</p> <p>e) To organise exhibitions, talks, seminars and business tours aimed at raising the standard of Malaysian Furniture.</p> <p>f) To help in organising training courses related to the wood-based industry as well as to assist in setting up training schools and technical colleges.</p> <p>g) To promote all aspects of furniture-related activities which are in line with the interest of the Association and the National.</p>
2.	Bumiputera Timber Furniture Association of Malaysia (PEKA)	<p>PEKA is gaining prominence and recognition among government bodies, government agencies, the public sector, the private and public sectors. PEKA is the only Bumiputra association recognised by the Timber Industry Board of Malaysia (MTIB) as a timber industry trustee and a member of the Board of MTIB apart from various Committees formed to mediate and monitor the Bumiputra interests as a whole. In line with the changing global economic policy and increasingly competitive, PEKA constantly develops creative and proactive ideas to keep the Association relevant and to benefit its members and to work closely with all agencies and various parties to keep its vision alive.</p>
3.	Bumiputera Furniture Industry Association of Malaysia (PETRA)	<p>The Bumiputera Furniture Industry Association of Malaysia also known as PETRA was established in 1989 under the name of the Malaysian Bumiputra Furniture Manufacturers Association (Umbrella Concept) whose</p>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		<p>members comprise participants of the government-sponsored scheme in the field of furniture manufacturing and supply to the Government of Malaysia. Later, the program is called integrated marketing program where entrepreneurs are managed by a government link company. Currently PETRA has 145 members and most of them are appointed panel for the supply of furniture to government agencies.</p> <p>The association has the following objectives: -</p> <ol style="list-style-type: none"> a) To integrate Bumiputra furniture entrepreneurs with business interests under the integrated marketing program. b) To advocate for the legal interests of members or measures related to trade, enterprise and business. c) To provide views, insights and suggestions for the benefit of members. d) To establish a form of co-operation to represent members not only with the 'Umbrella Concept' but also at the staff level, government departments related to the business of all members. e) To provide suggestions and views as well as criticisms if considered appropriate by the Committee on implementing the program in determining the position of members. f) To publish a magazine or brochure related to a member company and any form of marketing, financing and technical cooperation in order to enhance the productivity of the member's business with the prior approval of the relevant authority. g) To resolve disputes arising between members at the request of both parties.

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		h) To take appropriate action to consolidate, organise and improve facilities for members at the request of both parties. i) To collect, obtain and disseminate statistics and other information deemed appropriate in connection with the furniture business and other member companies.

2.3.3 Training Centres

Human Capital Development is vital in the efforts to enhance the viability of the furniture industry. In this regard, manpower needs for the Furniture industry are provided by several agencies which include among others specialised training institutions which provide dedicated skills-based training programmes for the furniture industry mostly in the manufacture of wooden furniture are as at Table 2.6.

Table 2.6: List of Training Centre for Manufacture of Furniture Industry

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
1.	Wood Industry Skills Development Centre (WISDEC)	WISDEC is a subsidiary of Malaysian Timber Industry Board which was established in 1995. WISDEC provides training with emphasis on enhancing the productivity of workers in the timber and wooden furniture industry, and offers a wide range of courses ranging from primary processing to downstream value-added activities. While specific skills upgrading courses are offered to those who are already employed in the industry, WISDEC has also designed competency based and structured programs to school leavers with a clear career path in the industry. WISDEC has also embarked on the Wood-based Industry

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
		Apprenticeship Scheme (Furniture) which is conducted in cooperation with (Human Resources Development Limited) (PSMB) and employers, which provides multi-skilled training opportunities leading to SKM Certification.
2.	Furniture Industry Technology Centre (FITEC)	FITEC a wholly-owned subsidiary of (MARA), established in 1994, is under the purview of the Ministry of Entrepreneur and Cooperative Development, focuses on providing training for Bumiputera furniture entrepreneurs, upgrading their skills in producing quality wooden furniture, upholstery furniture and metal furniture products and promoting it in the global market. FITEC is also involved in providing consultation services in technical, management and the marketing of furniture.
3.	Terengganu Timber Industry Training Centre (TTITC)	TTITC was formed by the Terengganu State Government and was established in 1997 with a dual purpose of facilitating training in wood processing as well as to be the centre of wood-based training in the Eastern Region of Peninsular Malaysia. TTITC also collaborates with PSMB in offering apprenticeship schemes designed to produce trained workers for the wooden furniture industry. Courses offered in TTITC include wood processing technology and furniture making. Upon successful completion of their courses, participants will be awarded with SKM Certification.

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
4	Sarawak Timber Industry Development Corporation (STIDC)	STIDC established in 1973 and currently assumes a major role of planning, coordinating and developing the timber and furniture industry in the state of Sarawak. Its objectives include promoting optimum and efficient utilisation of timber resources through downstream processing and product diversification. STIDC is also involved in the marketing of high-quality wood-based products suitable for both overseas and domestic markets. In terms of capacity building, STIDC provides competency based training and short technical courses in the various aspects of the timber and furniture industry. Among the areas covered in the training are logging operations, timber processing, sawmilling, basic wood working and carpentry, furniture designs as well as manufacturing and wood carving.
5	Forest Research Institute Malaysia (FRIM).	FRIM was established in 1929. FRIM is presently a statutory body under the Ministry of Natural Resources and Environment (MNRE). Among its objectives are generating scientific knowledge for the understanding, management, conservation and use of forest resources. In the effort to develop human resources for the forestry sector, FRIM also offers training programs in wood identification, wood machining and plywood making. Currently FRIM is the regulator for the Furniture Supply for Panel of Manufacturers for the Ministry of Finance Contracts.

In addition to these five specialised training institutions, there are others administered by various government agencies which also offer skills training related to the furniture industry. Examples of such multi-disciplinary training institutions includes Industrial Training Institute (ILP); National Youth Skills Institute (IKBN) and MARA Skills Institute (IKM), which offers manufacture of wooden furniture training at selected branches of these institutions. Skills-based training in these institutions is based on the National Occupational Skills Standards (NOSS), developed by the Department of Skills Development (DSD), Ministry of Human Resources. Upon completion of these courses, the trainees would be awarded with the relevant (Malaysian Skills Certificate) (SKM) by the DSD.

2.4 Government Legislations, Policies and Initiatives

It is imperative that, this research has to refer to legislations, by-laws and policies that are directly related to Manufacture of Furniture industry.

2.4.1 Government Legislations

The following legislations are relevant to the Manufacture of Furniture industry:

a) Employment Act 1955 [Act 265]

An Act relating to employment. Scope of the Act (First Schedule of the Employment Act): The definition of "employee" covered under the scope of the Employment Act is as follows¹²:

- i) Based on wages, regardless of nature of work i.e., employees earning RM2,000 and below; or
- ii) Based on the nature of work, regardless of wages i.e., employees engaged in manual labour or employees supervising those engaged in manual labour in and throughout the performance of their work. Drivers and other

¹² National Human Resource Centre (NHRC). (29 June, 2019). Retrieved from <http://www.nhrc.com.my/employment-act-1955#.XSLIoDjVK00>

employees who are involved in the operation and maintenance of motorised vehicles and irrespective of the wages they earn in a month.

b) Trade Descriptions Act 2011 [Act 730]

An Act for the purpose of promoting good trade practices by prohibiting false trade descriptions and false or misleading statements, conduct and practices in relation to the supply of goods and services and to provide for matters connected therewith or incidental thereto¹³.

c) National Forestry Act 1984 [Act 313]

An Act to provide the administration, management and conservation of forests and forestry development within the states of Malaysia and for connected purpose.

d) Environmental Quality Act 1974 [Act 127]

An Act relating to the prevention, abatement, control of pollution and enhancement of the environment and for purpose connected herewith.

e) Factories and Machinery Act 1967 [Act 139]

An act to provide for the control of factory with respect to matters relating to safety, health and welfare of person therein, the registration and inspection of machinery and for matters connected therewith.

f) Occupational Safety and Health Act 1994 [Act 514]

An Act to make further provisions for securing the safety, health and welfare of persons at work, for protecting others against risks to safety or health in connection with the activities of persons at work, to establish the National

¹³ Trade Act of 2011. (30 June, 2019) Retrieved from <https://www.inta.org/INTABulletin/Pages/MALAYSIANewTradeDescriptionsAct.aspx>

Council for Occupational Safety and Health, and matters connected therewith.

2.4.2 Government Policies and Initiatives

This section provides information on related government policies and initiatives for Manufacture of Furniture industry.

a) National Timber Industry Policy (NATIP) 2009-2020

The National Timber Policy or NATIP is providing the strategic thrusts and policy directions in addressing the challenges to ensure they remain sustainable and competitive.

i) Thrust 1: Industry Structure

The policy shifts the focus of the timber industry from upstream activities to value-added downstream activities. Export earnings from the downstream activities are targeted at 60 per cent and 40 per cent from primary activities.

ii) Thrust 2: The Supply of Raw Materials

The policy direction for the supply of raw materials should give due emphasis to the assurance of a steady "own of timber from the natural forests, forest plantations, biomass and composite to enable strategic plans to be developed for the long-term sustainable growth and competitiveness of the timber industry. The target of achieving RM53 billion in timber exports by the end of the IMP3 in 2020 The policy direction for the supply of raw materials should give due emphasis to the assurance of a steady "own of timber from the natural forests, forest plantations, biomass and composite to enable strategic plans to be developed for the long-term sustainable growth and competitiveness of the timber industry. The target of achieving RM53 billion in timber exports by the end of the IMP3 in 2020.

iii) Thrust 3: Innovation and Technology

In the near future, innovation and technology development in the timber industry will assume an important role in providing the state-of-the-art technologies to the timber industry so as to remain competitive globally. To achieve this goal, it is recommended that the following policy directions should be adopted:

- Strengthening the structure of the timber industry to make Malaysia the top supplier of high-quality timber products;
- Strengthening R&D efforts between RIs, universities, government agencies and the industry, so as to provide continuous improvements on existing products as well as new products development;
- Providing further incentives for the commercialisation of new technology uptake; and
- Using alternative energy for the development of the industry.

iv) Thrust 4: Marketing and Promotion

The timber industry must position itself to expand further its market with sound marketing strategies. The broad policy directions are:

- Enhancing the competitiveness of Malaysian timber products through market and value creation;
- Increasing Malaysia's market share in the international market for timber and timber products and be a leading global supplier of quality timber products;
- Identifying marketing strategies to project the strength of the Malaysian timber industry, taking into account the changing environment of the international market;
- Ensuring the continued growth and competitiveness of the timber industry, by adding value, developing OBMs, promoting the green image, protecting the environment and researching into new products; and

- Encouraging the growth of the domestic market through intensive promotional activities.

v) Thrust 5: Human Capital Development

The development and expansion of the required skilled workforce need to be further strengthened to enable the industry to move up the value chain. The core skills in areas that need to be developed and expanded include design and branding, production management, product development, wood finishing technology, as well as appropriate knowledge in the fields, related to planting, harvesting and processing of new fibre materials. Hands-on training in specialised areas such as forest plantations management, advanced wood processing and manufacturing and the manufacture of bio-composite are also crucial and must be made a priority.

vi) Thrust 6: Funding and Incentives

Incentives for export include the following:

- Double Deduction for the Promotion of Exports
- Single Deduction for the Promotion of Exports
- Double Deduction for the Promotion of Malaysian Brand Names
- Double Deduction on Freight Charges
- Tax Exemption on the Value of Increased Exports

Financing facilities are also available through nine government agencies and organisations which include SMIDEC, MIDF, SME Bank, EXIM Bank, MATRADE, MTDC, Malaysian Export Credit Insurance Berhad (MECIB), Credit Guarantee Corporation (CGC), and Ministry of Entrepreneur and Cooperative Development (MECD) including (MARA). They cover both conventional and Islamic banking facilities related to micro-credit. The main facilities provided for manufacturers include the following:

- Soft loans for SME
- New Entrepreneurs Fund 2 (NEF2)

- Fund for Small and Medium Industries 2 (FSMI 2)
- Rehabilitation Fund for SMI (RFSMI)
- Special Assistance Scheme for Women Entrepreneurs vi. Japan Bank for International Cooperation Fund For SMI(JBIC-FSMI)
- Soft Loans for IT adoption
- Soft Loans Scheme for Factory Relocation
- Export Credit Refinancing (ECR)
- Export Credit Insurance
- Guarantee Scheme by CGC
- Special Financing for Manufacturing and Franchise Projects by MARA
- Micro Credit Scheme by Bank Simpanan Nasional (BSN)

vii) Thrust 7: Bumiputera Participation

The policy directions in establishing competitive and sustainable Bumiputera participation in the timber industry are:

- Emphasising the involvement of Bumiputera participation at all levels of the value chain;
- Involving Bumiputera in downstream activities rather than from being mere recipients of forest timber concessions;
- Providing opportunities for Bumiputera entrepreneurs' involvement in state owned Integrated Timber Complexes (ITCs);
- Encouraging state governments to assume more active role in the development of Bumiputera entrepreneurs;
- Restructuring and consolidating TIP as nuclei for Bumiputera manufacturing facilities; and
- Emphasising the development of SME in the woodcraft and cottage industries which include rattan and bamboo.

2.5 Industry and Market Intelligence

Industry and market intelligence are the collection and analysis of data of an industry by various sources of data to be utilised by the industry to make business decisions, manpower developments and training requirements. Industry intelligence is critical for developing strategies in the development of the industry, areas of manpower development and the impact of those developments. This section will provide information regarding manufacture of furniture industry based on the industry growth and employment statistics.

2.5.1 Growth of Manufacture of Furniture Industry

Based on National Account Gross Domestic Product 2015-2018, Malaysia gross domestic product (GDP) recorded RM 1,361.5 billion in 2018, which showed 4.7 per cent growth compared to 2017 with 5.7 per cent¹⁴. For main contributor in Malaysia GDP 2018, services and manufacturing are the main contributor with 56.7 per cent and 22.4 per cent each while for main expenditure, private final consumption was the main influencer.

Other than that, for this research, it will focus on manufacture of furniture industry in manufacturing sector. For manufacturing sector percentage share to Malaysia GDP, it recorded 22.4 per cent contribution to Malaysia GDP 2018 compared to 22.3 per cent in 2015, 2016 and 2017¹⁵. From the percentage share, it can be seen that, in 2018, manufacturing sector recorded an increase in percentage share to Malaysia GDP compared to 2017. More than that, for manufacture of furniture percentage share to Malaysia GDP decreased in 2018 to 0.3 per cent compared to 0.4 per cent in 2017 and 2016¹⁶.

Other than that, annual percentage change of manufacture of furniture industry in 2018 was slightly decreasing in term of per cent by year compared to 2017. In 2018, annual percentage change for manufacture of furniture industry was 4.2 per cent compared to 5.8-per cent in 2017 and 9.9 per cent in 2016¹⁷.

¹⁴ Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018. Page 1

¹⁵ Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018. Page 45

¹⁶ Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018. Page 46

¹⁷ Department of Statistics Malaysia. 2019. National Account Gross Domestic Product 2018. Page 38

2.5.2 Employment Statistics

This section provides an overview regarding labour force, labour demand in Malaysia and employment statistics of manufacturing sector.

a) Labour Force in Malaysia

Labour force can be defined as the sum of persons in employment plus persons in unemployment. Together these two groups of the population represent the current supply of labour for the production of goods and services taking place in a country through market transactions in exchange for remuneration¹⁸. The concept and definition of labour force in Malaysia are stated in Figure 2.1 below.

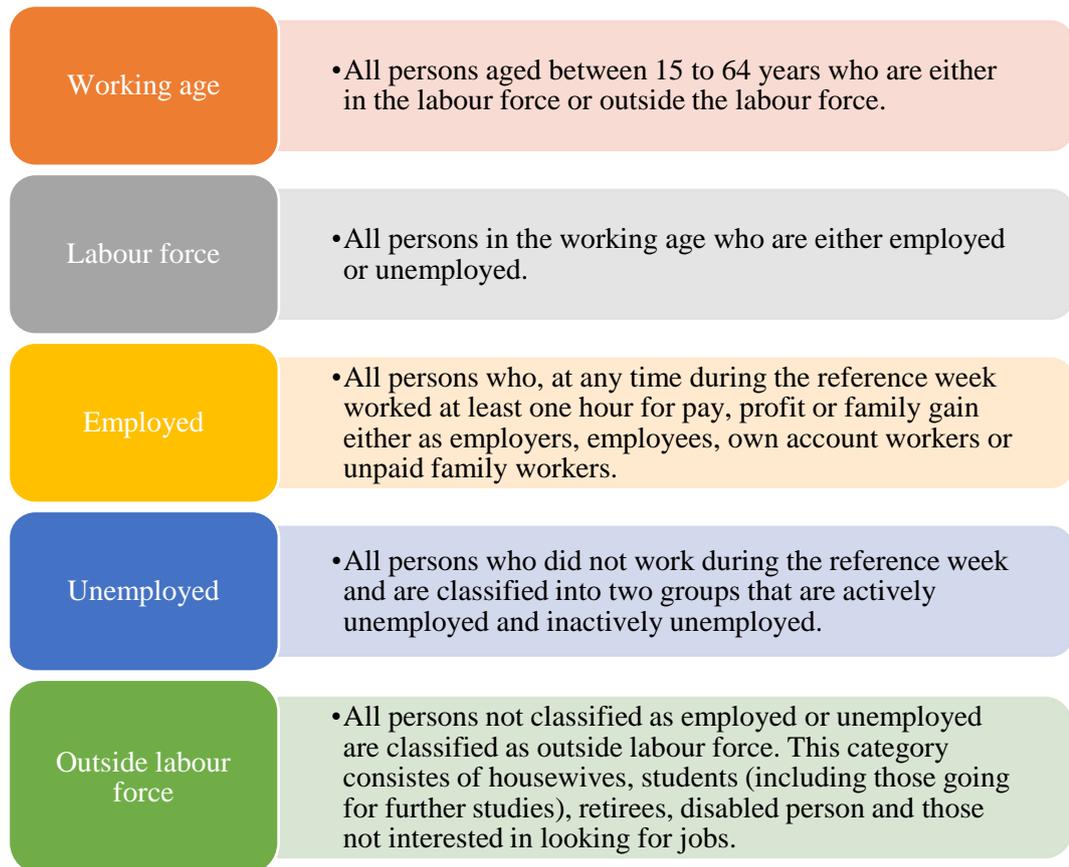


Figure 2.1: Concept and Definition of Labour Force in Malaysia
(Source: Department of Statistics Malaysia, 2019)

¹⁸ International Labour Organization. 2018. Labour force (2019, 30 September) Retrieved from https://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/WCMS_470304/lang-en/index.htm

Labour force in Malaysia increased by 2.0 per cent from 15.0 million persons in 2017 to nearly 15.3 million persons in 2018. The increment in labour force was contributed by 299,200 employed persons. Labour force participation rate (LFPR) in 2018 increased by 0.3 percentage points to 68.3 per cent as compared to 68.0 per cent in 2017¹⁹. Hence, the remaining 31.7 per cent of the working age population was outside the labour force. On the other hand, the unemployment rate improved to 3.3 per cent in 2018 as compared to 3.4 per cent in 2017. This shows that the country's economy is still operating with full employment where the unemployment rate is below 4.0 per cent.

b) Overview of manufacturing sector labour demand

Labour demand indicates the total labour that the economy is willing to employ at any given point of time. At the microeconomic level, labour demand by firm refers to positions in the company; and through the process of hires and separations, the information of filled positions and vacancies can be estimated. The concepts and definitions of the statistics on labour demand in this publication are as in Figure 2.2.

¹⁹ Department of Statistics Malaysia. 2019. The Labour Force Survey Report 2018. Page 12



Figure 2.2: Concepts and Definitions of the Statistics on Labour Demand

(Source: Department of Statistics Malaysia, 2019)

The number of positions for Manufacturing sector in 2018 was 2,245 thousand, went up 23 thousand from 2,222 thousand in 2017. The number of filled positions increased to 2,132 thousand (2017: 2,111 thousand) while vacancies in this sector increased by 2 thousand. Meanwhile, there were 19.9 thousand jobs created in the services sector in 2018²⁰.



Figure 2.3: Employment Statistics in Manufacturing Sector

(Source: Department of Statistics Malaysia, 2019)

²⁰ Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 15

For position by skill in manufacturing sector by percentage share for 2018, 73.9 per cent was recorded for semi-skilled worker, 18.8 per cent for skilled worker and 7.3 per cent for low skilled worker²¹. As compared to 2017, the numbers of semi-skilled worker position were 73.8 per cent, while for skilled worker and low skilled worker were 18.9 per cent and 7.3 per cent recorded for each part. The details of the information can be referred to Figure 2.4.

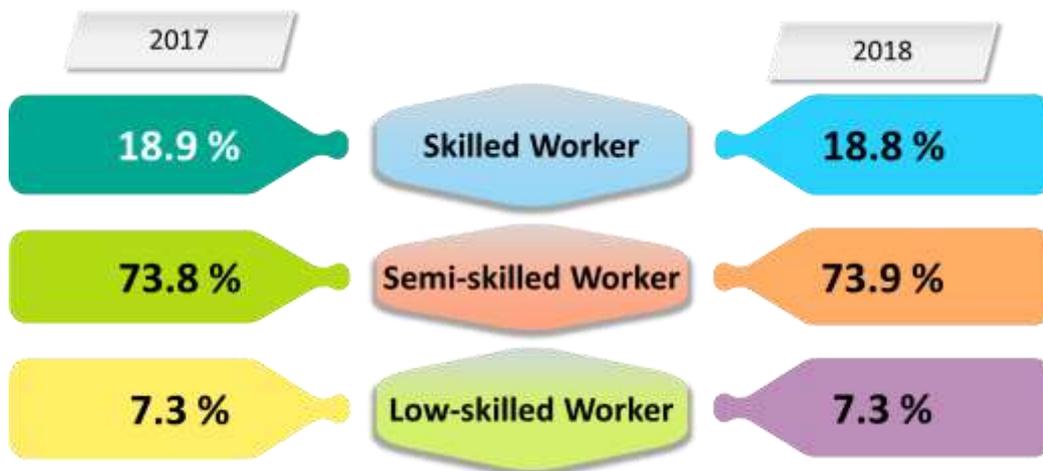


Figure 2.4: Position by Skill in Manufacturing Sector by Percentage Share
(Source: Department of Statistics Malaysia, 2019)

The category of workers used in this study is referring to MASCO classification of occupation, which are skilled worker, semi-skilled worker and low-skilled worker. Skilled worker is a category of workers who work as managers; professionals; technicians and associate professionals. Semi-skilled worker is a group for clerical support workers; service and sales workers; skilled agricultural, forestry, livestock and fishery workers; craft and related trade workers; and plant and machine operators and assemblers. The personnel who work in elementary occupation are classified as low-skilled workers. Other than that, for filled positions by skill in manufacturing sector by percentage share, for 2018, 74.7 per cent was recorded for semi-skilled worker, 18.6 per cent for skilled worker and 6.7 per cent for low skilled worker²². The comparison with 2017 can be referred to Figure 2.5.

²¹ Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 32

²² Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 38



Figure 2.5: Filled Position by Skill in Manufacturing Sector by Percentage Share
(Source: Department of Statistics Malaysia, 2019)

More than that, for vacancies by skill in manufacturing sector by percentage share for 2018, 59.2 per cent was recorded for semi-skilled worker, 23.2 per cent for skilled worker and 17.6 per cent for low skilled worker²³. The comparison with 2017 can be referred to Figure 2.6.



Figure 2.6: Vacancies by Skill in Manufacturing Sector by Percentage Share
(Source: Department of Statistics Malaysia, 2019)

²³ Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 44



Figure 2.7: Jobs Created By Skill in Manufacturing Sector by Percentage Share
(Source: Department of Statistics Malaysia, 2019)

Last but not least, for jobs created by skill in manufacturing sector by percentage share for 2018, 59.2 per cent was recorded for semi-skilled worker, 38.3 per cent for skilled worker and 2.5 per cent for low skilled worker²⁴. The comparison with 2017 can be referred Figure 2.7.

c) Employment growth of manufacturing of furniture industry



Figure 2.8: Number of Persons Engaged in Manufacturing of Furniture, 2015 and 2017, Malaysia

(Source: Department of Statistics Malaysia, 2018)

²⁴ Department of Statistics Malaysia. 2019. Employment Statistics Second Quarter 2019. Page 50

Figure 2.8 shows the number of persons engaged in manufacturing of furniture for 2015 and 2017 where it can be seen here that the number of persons engaged increased from 84,653 persons in 2015 to 95,737 persons in 2017²⁵.

2.5.3 Conclusion

In conclusion, for manufacture of furniture industry, from 2016 to 2018, the contributions of this industry toward Malaysia GDP in 2018 were decreased by 0.3 per cent compared to 0.4 per cent in 2017 from the previous year.

More than that, for employment statistics, number of persons engaged with the manufacture of furniture industry increased to 95,737 persons in 2017 compared to 84,653 persons in 2015. The growth of this industry clearly shows that manufacture of furniture industry is one of the potential industries that enhance country development in the future.

2.6 Existing NOSS Relevant to MSIC 2008 Section C, Division 31

The DSD has developed 8 NOSS related to MSIC 2008 Division 31, as of January 2019. The summary of NOSS title, according to NOSS Registry January 2019, is provided in the Table 2.7 below.

Table 2.7: Summary of NOSS developed under the Division 31

(Source: NOSS Registry January 2019)

MSIC 2008 GROUP	CORRESPONDING NOSS/LEVEL
310 Manufacture of furniture	1) C310-001-4:2017 Furniture Product Development 2) RB-050-2:2012 Furniture Production Operation 3) RB-050-3:2012 Furniture Production Operation 4) RB-052-3:2014 Upholster Operation 5) RB-053-4:2014 Furniture Production Operation

²⁵ Department of Statistic Malaysia (DOSM). (2018). Annual Economic Statistic 2018. Page 27

MSIC 2008 GROUP	CORRESPONDING NOSS/LEVEL
	6) RB-053-5:2014 Furniture Production Management 7) RB-055-2:2014 Sample Making Production 8) RB-055-3:2014 Sample Making Supervision

From the previous OA, all furniture related NOSS were defined under the wood-based sub sector, under the resource based sector. Hence, the NOSS were given NOSS code that started with RB (Resource Based). Since the introduction of MSIC 2008, all furniture related NOSS were using NOSS code that started with letter C to represent MSIC 2008 Section C, manufacturing.

2.7 Overview of Manufacture of Furniture Industry with Developed Countries

Manufacturing of furniture industry is an important industry. Even in developed countries manufacturing of furniture industry is an important industry which acts as a major contributor to the economy and provides jobs to millions of people. Three countries are selected as overview for the construction industry which are United States of America, Germany and China. All of the country selected are the top country in manufacturing of furniture industry in the world. The complete comparison between these countries are listed in Chapter 4.

2.8 Relation of Industry and Industry 4.0

Industrial production was transformed by steam power in the nineteenth century, electricity in the early twentieth century, and automation in the 1970s. These waves of technological advancement did not reduce overall employment. With the surge of automation in manufacturing sector, the number of manufacturing jobs decreased but new jobs emerged and the demand for new skills increased. Today, another workforce transformation is on the horizon as manufacturing experiences a fourth wave of technological advancement: the rise of new digital industrial technologies that are collectively known as Industry 4.0.

The Ministry of International Trade and Industry (MITI) has identified the main pillars²⁶ of Industry 4.0 and the description²⁷ of each is given as in the Table 2.8 below.

Table 2.8: The 9 Pillars of Industry 4.0’s Pillars Acknowledged by MITI
(Source: MITI, 2018)

NO.	INDUSTRY 4.0 PILLARS	BRIEF DESCRIPTION
1	Autonomous Robots	Coordinated and automated actions of robots to complete tasks intelligently, with minimal human input.
2	Big Data Analytics	The analysis of ever larger volumes of data. Circulation, collection, and analysis of information is a necessity because it supports productivity growth based on a real-time decision-making process.
3	Cloud Computing	Storing and accessing data and programs over the Internet instead of your computer’s hard drive.
4	Internet of Things (IOT)	All machines and systems connected to the production plant (as well as other systems) must be able to collect, exchange and save these massive volumes of information, in a completely autonomous way and without the need of human intervention.
5	Additive Manufacturing (3D printing)	Use in prototyping, design iteration and small-scale production and often described as “rapid prototyping” - produce the desired components

²⁶ MITI. Industry 4.0. FAQ. www.miti.gov.my

²⁷ Vaidyaa, S., Ambadb, P., Bhoslec, S. (2018). Industry 4.0 – A Glimpse. 2nd International Conference on Materials Manufacturing and Design Engineering. Elsevier B.V.

NO.	INDUSTRY 4.0 PILLARS	BRIEF DESCRIPTION
		faster, more flexibly and more precisely than ever before.
6	System Integration	The process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole via Internet of Things-IoT.
7	Cyber-security	With the increased connectivity and use of standard communications protocols, the need to protect critical industrial systems and manufacturing lines from cybersecurity threats is increasing.
8	Augmented Reality	Augmented-reality-based systems support a variety of services, such as selecting parts in a warehouse and sending repair instructions over mobile devices - provide workers with real-time information to improve decision making and work procedures.
9	Simulation	Simulations will leverage real-time data to mirror the physical world in a virtual model, which can include machines, products, and humans. This allows operators to test and optimize the machine settings for the next product in line in the virtual world before the physical changeover, thereby driving down machine setup times and increasing quality.

Based on the FGD, the panels suggested that Manufacture of Furniture industry use Autonomous Robot, Internet of Thing (IoT) and Big Data as the elements of Industry 4.0 that related to the industry.

The Manufacture of Furniture industry face multiple challenges from recalls to serving customer demands. Industry 4.0 will turn manufacturers into predictors instead of reactors. This will save time and money for those who invest in the technology.

2.9 Conclusion

The Manufacture of Furniture industry is an important and strategic part of Malaysian manufacturing industry. The overall Manufacture of Furniture industry employment around increased from 84,653 persons in 2015 to 95,737 persons in 2017.

There are 8 NOSS related to this division that have been developed over the years. Most of the NOSS titles in this group have not been revised and require immediate action to update the standard, in line with the growth of the industry.

The findings on industry landscape, MSIC 2008 definition of the job area, and the NOSS that have been developed give an insight of the overall picture of the industry. These inputs pave the way and guide the next course of action in restructuring the occupational structure, identifying skills in demand and critical job titles. The requirements of Industry 4.0 as well would give an impact to the future of the manpower in this area.

As to materialise the above, certain research methodologies are employed. The description of research strategies and approaches is discussed in next chapter.

CHAPTER 3: METHODOLOGY

3.1 Introduction

In developing better appreciation on the current development of Manufacture of Furniture Industry in Malaysia, this study used mixed method research which are the quantitative and qualitative approach using three phases procedure and exploratory sequential mixed methods design. In this type of methodology, the study will first start with qualitative approach and after data and analysis stage, it will be followed by quantitative approach. The strategy in utilising this approach is to develop the questionnaire with a smaller sample (in qualitative approach) and see whether it can be generalised in the larger sample (quantitative approach). Specifically, the strategy of this research approach is as shown in Figure 3.1.



Figure 3.1: Three – Phase Procedure in Exploratory Sequential Mixed Methods Design

The phases in exploratory sequential mixed methods design are as follows:

Phase 1: 6 industry players through purposive sampling, were brought together to engage in discussion in manufacturing of furniture. Initially screening process was done to only selected managerial level personnel from the industry where homogeneity in terms of experience and occupation were considered. In this phase an experienced moderator was chosen in order to control the dynamic of the group. The main aim of utilising this focus group method is to develop questionnaires to be used in subsequent survey. The discussion was captured through notes taking by an assistant moderator.

Discussion were focused on skills competency related to personnel involved in manufacture of furniture, job in demand, emerging skills and key issue/s related to manufacture of furniture industry.

Phase 2: From the draft of the report, instrument to be used for future survey were build. Four main subjects matter came out of the focus group discussion namely: competency in demand, jobs in demand, emergent skills and related issues. Draft of the instrument was sent to an industry expert and an academician for verification in ensuring the validity of the instrument.

Phase 3: Once the instrument was verified, at this phase, a pilot test was carried out to the prospective target respondents.

3.2 Research Approach

In order for a more empirical study to be carried out, the following Figure 3.2 explained in detail on the research methodology that was carried out.

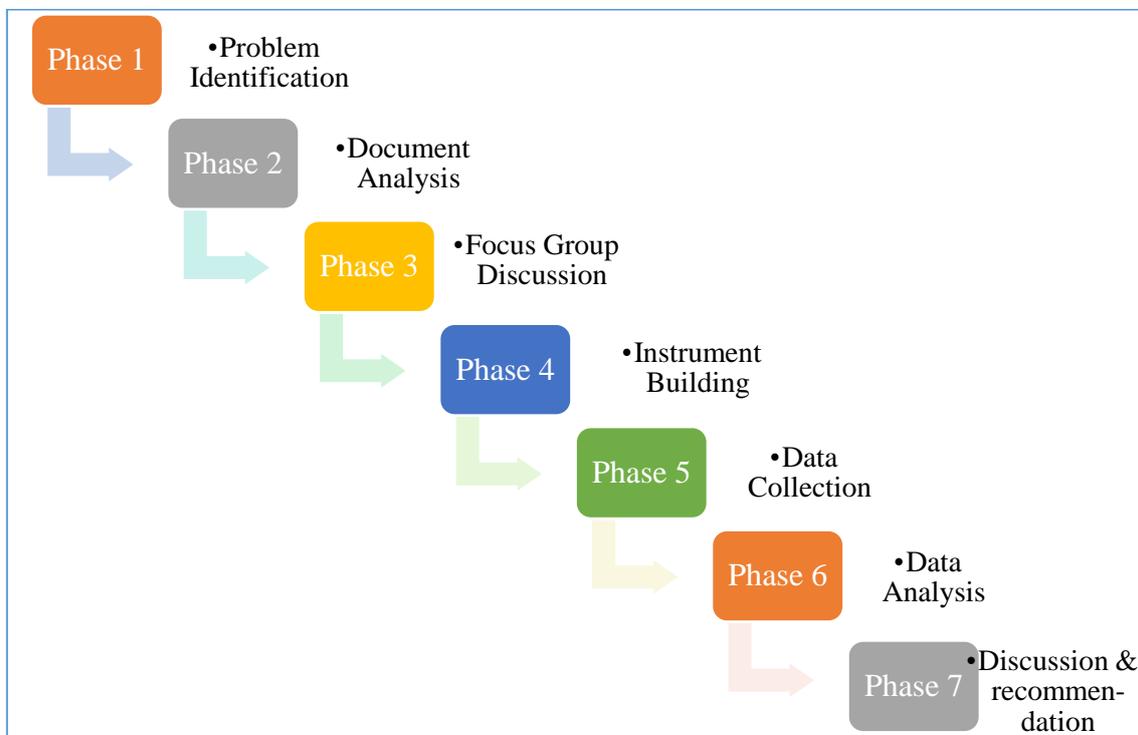


Figure 3.2: Phases of Research Methodology for Manufacture of Furniture Industry in Malaysia

In summary, the phases are explained as follows:

Phase 1: Identification of research problem: Broad problem area has been identified through preliminary information gathering, which was from secondary data and literature review.

Phase 2: Document Analysis: Perform actual secondary data collection by reviewing published information available from sources such as websites, archives and other written reports.

Phase 3: Preparation of Qualitative Data Procedure: The interview protocol is in the form of semi structure questions that is prepared in line with the objective of this study. The interview protocol was developed by the researchers themselves. The validity of this study will be verified by employing triangulation strategy. In this approach, the researchers will triangulate different data sources of information to build a coherent justification of the different themes in close relation to the aim of the study. Focus group will then be conducted where the respondents will be from industry experts and practitioners.

Phase 4: Quantitative Instrument building: From the focus group discussion a reliable instrument will be reviewed and verified to be used in the actual field survey.

Phase 5: Quantitative data collection: Actual data collection will be carried out. Both self-administered and internet survey will be carried out at nationwide for generalisation purposes. Sample from the population will be collected at random to be representative.

Phase 6: Data Analysis for both qualitative and quantitative data approach: Final verification by Focus Group Discussions will be carried out. New focus group members will be selected from industry players who will look at the documents as a whole. They will also be requested to verify the descriptive analysis that was utilised in quantitative approach. The issues of concern will relate to demand for the skills, jobs title, and critical tasks skills level for the Manufacture of Furniture industry.

Phase 7: Discussion and recommendation: Final discussion on the study will be established with recommendations.

There are three approaches selected to be employed for data collection. These three data collection approaches for the Manufacture of Furniture Industry namely: Document Analysis, Survey and Focus Group Discussion.

3.2.1 Document Analysis

Review of existing literature that addresses a clearly formulated question. The review systematically searches, identifies, selects, appraises, and synthesizes document research evidence found in the trade journal, academic paper and related journals. This approach will also address the overview of the industry relevant to the requirement of Industry 4.0 and industrial need.

a) Data Collection Strategy

There were two main strategies used for data collection:

- i) Economic Database; and
- ii) Database from other relevant agencies.

i) Economic Database

For Economic Database, information related to labour demand and job structures are highly relevant to this study. Thus, the information from the Department of Statistics Malaysia (DOSM) - MSIC 2008 and Occupation categories by MASCO, 11th Malaysia Plan, National Budget and Talent Corporation are gathered, analysed and reported.

Information from the Economic database serves two purposes:

- To provide a snapshot of the current Manufacture of Furniture industry landscape and outlook.

- To serve as control figures and baselining database when assessing data obtained from the self-administered and internet survey.

ii) Database from other relevant agencies.

In addition to the Economic database, information from other agencies (local and international agencies) that are relevant to Manufacture of Furniture related activities will be collected and analysed. Based on initial observation, the following database contain relevant information for the industry.

- Local database – DSD, MITI, MIDA and MTIB
- International database – Organisation for Economic Co-operation and Development (OECD), World Bank and European Union (EU)

b) Data Analysis Procedure

Based on the three databases, the following analyses were carried out.

- i) Establishing the economic performances of the industry by looking at several macroeconomic indicators (such as GDP, employment and output).
- ii) Examining the industry outlook in relation to regional and global perspectives.
- iii) Establishing the profile of the current and future workforce (such as occupations, and salaries and wages).
- iv) Relating technological development in the industry (such as robotic & automation as well as element of Industry 4.0) to the studied industry.

3.2.2 Focus Group Discussion

A series of industry engagement based on FGD was conducted to enable in-depth discussions on the issues of the industry workforce. The FGD discussed on the Occupational Structure (OS), Occupational Description (OD), assessment of curriculum and training programs; accreditation and qualification based on NOSS and MQA framework; potential workforce challenges; future outlook and strategic

recommendations to be proposed. There were two FGD sessions conducted during this study.

For focus group discussion, the sessions were conducted by a facilitator. Facilitator has been commissioned by the DSD to develop occupational standards according to the guidelines that have been set. The function of the facilitator was to found information and developed occupational standards in accordance with the format and formulas prescribed by the DSD. While the industry expert must be a person who had at least 7 years of experience in the related industry and worked with the company registered with Suruhanjaya Syarikat Malaysia (SSM).

For the first session, semi structured questions for focus group discussion has been prepared and answered based on the respective OS and OD. The questions were based on four themes namely: competency in demand, jobs in demand, emerging skills and related issues. The identification of critical job in Manufacture of Furniture industry was also determined. Questions for the survey method has been developed. Consequently, in the second FGD session, results from the survey were verified and validated.

Sample of FGD semi structured interview questions:

- What will be the industry Occupational Structure (OS) looks like?
- What will be the Occupational Descriptions (OD) for each job title?
- How to determine the demand for the industry skills?
- How to determine the relevant jobs title that is in line with Industry 4.0?

The first FGD was held on 3rd and 4th of August 2019. The subsequence FGD workshop was held on 21st to 22nd September 2019. The complete list of FGD participants can be referred to Annex 2.

a) Data Collection Strategy

Manufacture of Furniture industry experts were engaged for brainstorming and in-depth discussion in the focus group session. They were identified for further communication and contact. To gather the information required,

brainstorming technique was adopted and in presence panel members who will discuss the different sub-sectors and areas. Facts obtained during the secondary documents will be discussed and presented to the development panel members. The information gathered was then used as the basis for the development of the Occupational Framework of the said sub-sector. Besides, workshops and interviews were conducted as support during the development of the Manufacture of Furniture Industry Occupational Framework. Follow up discussions with the expert panel members will be in smaller groups to verify the findings of the Occupational Framework in a second FGD sessions.

b) Data Analyses Procedure

The following analyses were carried out for FGD sessions:

- i) Review initial findings obtained from the self-administered and internet survey.
- ii) Assess the potential workforce challenges faced by the overall industry and any important sub-sectors would be useful.
- iii) Examine the demand and supply of talent in the Manufacture of Furniture industry according to NOSS and MQA standards.
- iv) Review the curriculum and training program relevant for the Manufacture of Furniture workforce occupations in coordination with accreditation (MQA and DSD) and training providers, comprising local academic institutions (universities or colleges), vocational and other training entities.
- v) Analysis of future trend of the occupational demand by various skill categories including TVET related occupations.
- vi) Construct the instrument for self-administered and internet survey.

In the FGD sessions, DACUM brainstorming technique was used in the process of gathering inputs from the industry experts. The industry experts discussed the areas that exist in Manufacture of Furniture industry. Information obtained from the literature review were also discussed and then used as input to the Occupational Framework of the said industry. Details of the workshops are depicted in the following Table 3.1:

Table 3.1: List of FGD Sessions

TARIKH	VENUE	ACTIVITY
3 – 4 August 2019	Pulse Grande Hotel, Putrajaya	<ul style="list-style-type: none"> • Confirmation of preliminary literature review. • Identification of occupational structure. • Development of questionnaire.
21 – 22 September 2019	Shaftsbury Stellar, Putrajaya	<ul style="list-style-type: none"> • Identify skills in demand. • Identify critical jobs. • Identify jobs related to Industry 4.0. • Develop occupational descriptions.

3.2.3 Survey

This study will employ self-administered and internet survey to achieve four key objectives related to the competency in demand, jobs in demand, emerging skills and related issues. Online form was used as a platform for the survey. The survey was specifically distributed to the related organisation base on organisational level, all over Malaysia.

Section 1: Competency in Demand

This section explores the competency that is required by the industry. Another objective of this section is trying to figure out the skills gap and how to overcome the gap for five years.

Section 2: Jobs in Demand

This section aims to determine which category of workers that is in shortage supply or over supply. The Critical Occupations List (COL) by TalentCorp Malaysia is referred to supplement the findings.

Section 3: Emerging Skills

This section determines the readiness of industry players and the workers in the advent of Industry 4.0. The technology drives or pillars of Industry 4.0 is listed and the respondents have to decide the relevancy of each element in their line of duty.

Section 4: Related Issues

This section explores the common issues surrounding the industry. The respondents are asked to choose the issues that were identified earlier by FGD panels.

a) Establishment and Sampling Procedure

According to Economic Census 2016 by Department of Statistics Malaysia (2017), as stated in the Table 3.2 below, the total number of establishments according to 3 digits MSIC 2008 Group 310: Manufacture of furniture was 2,521.

Table 3.2: Number of Establishments under 3 Digits MSIC 2008 Group 310:
Manufacture of Furniture

Group and Industry Description	Group and Industry Code	Number of Establishment
Manufacture of Furniture	310	2,521
Manufacture of wooden and cane furniture	31001	2,010
Manufacture of metal furniture	31002	280
Manufacture of mattress	31003	72
Manufacture of other furniture, except of stone, concrete or ceramic	31009	159

According to Roscoe (1975), sample size of 30 and less than 500 are appropriate for most research. Therefore, since the total population is 2,521 companies, the number of sample establishments was 66 and number of targeted respondents was 35. However, to minimize errors in sampling and to take care issues of non-response, the number of targeted respondents were doubled and a total of minimum 70 questionnaires were distributed to selected companies or organisations. For respondent's response rate, based on Brauch, Y & Holtom, B.C (2008), the average level of response rate is 52.7 per cent. After data collected exercise was conducted, there are 46 totals of questionnaire collected. The targeted respondents were among the managerial

levels in the related company and association in the industry or human resources director.

Based on sample size calculator software Raosoft, the sample size was calculated and the results was shown in Table 3.3. This research used 10% margin of error based on Weisberg & Bowen (1977) which stated 10% margin of error are acceptable for this kind of research.

Table 3.3: Number of Targeted Respondents According to MSIC 2008 Group

SECTION	C	MANUFACTURING	NUMBER OF ESTABLISHMENT	NUMBER OF SAMPLE	NUMBER OF TARGETED RESPONDENTS	NUMBER OF ACTUAL RESPONDENTS
DIVISION	31	Manufacture of Furniture				
GROUP	310	Manufacture of furniture	2,521	66	35	46

b) Questionnaire Design

For this study, the questionnaires are designed based on the feedback from focus group discussion based on the four-key important, which are competency in demand, jobs in demand, emerging skills and related issues.

To increase the response rate and consistent responses, the questionnaire was designed based on close-ended questions on interval scale appropriate to the instrument. Content validity and face validity were employed. Content validity were performed in the pre-test stage by two experts from academic and industry sectors. They were expected to identify the content, grammar, phrasing of sentences and comprehend of the items used. After the pre-testing stage is completed, a pilot test was conducted to pre-test the instruments for

this study. 10 respondents were chosen and none of the items required modification.

c) Measures and Instrumentation

For this study, there are measures used in the section in the questionnaire. As for section 1, it discusses the competency in demand and will use 4 interval scale ranging from 4 (High in demand), 3 (In Demand), 2 (Low in demand) and 1 (Not in demand) measuring the intensity of job demands against supply or labour.

In section 2, it discusses on jobs in demand and will use 4 interval scale ranging from No Shortage, Low Shortage, Mid Shortage and High Shortage measuring the shortage of manpower in Manufacture of Furniture Industry.

In section 3, Emerging skills are discussed in this section. It contains close ended question and questions that also use 4 interval scale ranging from 4 (High in Demand), 3 (In Demand), 2 (Low in Demand) and 1 (Not in Demand) measuring the important prerequisite and skills for Industry 4.0 in Manufacture of Furniture Industry.

In section 4, related issues regarding the industry are discussed and 4 interval scale ranging from 4 (Strongly Agree), 3 (Agree), 2 (Disagree) and 1 (Strongly disagree) are used in measuring the key issues in Manufacture of Furniture Industry.

d) Data Collection Strategy

In collection of primary data, costing is an important consideration that influences the determination of sampling size. The population of the industry is large and requires a significant financial budget if a nationally representative survey is the primary target. The consultation with related associations concluded that a nationally representative survey is not feasible.

Instead of aiming for a nationally representative sample, the survey aims to increase participation rates from industries.

To lessen bias in the survey procedure, as suggested by Armstrong and Overton (1977), extrapolation method is employed. Non-response bias (error) occurs when respondents vary in significant ways from the non-respondents in the research (Sekaran, 2013), which is common in face to face and via mail surveys method (Armstrong & Overton, 1977; Groves, 2002). For this study, personal distribution of survey questionnaire (face to face) method were employed for data collection. Non-response from respondents, usually occurs when respondents declined to answer or have language problems (Groves, 2002). To encourage good response rates from the respondents, a token of appreciation was given to respondents for each questionnaire completed.

There are two approaches for the data collection:

- i) Approaching the related associations' members. The secretariat of each association has agreed to distribute the questionnaire. Industry engagements/interviews/visits are scheduled to seek their assistance to distribute the online survey to the members of respective associations.
- ii) Assistance from MITI and MIDA may also be required to provide the institutional support when engaging the selected respondents.

e) Data Analysis Procedure

The following analyses were obtained from the survey:

- i) Descriptive analysis of employment profiles and other variables that are included in the questionnaire.
- ii) Analysis of critical occupations identified by the industry.
- iii) Analysis of future trend of the occupational demand by various skills category including TVET related occupations.

- iv) Analysis of talent gaps between supply and demand according to NOSS and MQA standards.
- v) Examine training provided by industries to employees.

3.3 Conclusion

In summary, the selected research methodologies chosen for this study were document analysis, survey and questionnaire and focus group discussion. Document analysis is chosen as it is an efficient and effective way of gathering data that are manageable and practical resources. Documents are easily accessible and reliable source of data. Obtaining documents from various sources are often far more cost efficient and time efficient than conducting the research and experiment. Document analysis are important in obtaining more information such as current statistics for related industry and the growth of the industry. Another approach used in this study was the survey where it is more effective for gathering sensitive information or when statistical data about what the majority of a certain group of people think are needed. For effectiveness, the shorter and more concise the questionnaire and the more specific the group of respondents, the more effective the results will be. Lastly, focus group discussion was deployed in this research due to free and open discussion among the respondents results in generation of new ideas that can be very useful for decision-making. It also a fast way to gain the needed information regarding job title in the related industry. This approach was time saving and an effective way to gather information from many sources.

CHAPTER 4: FINDINGS

4.1 Introduction

This chapter elaborates the findings from the research. The findings revolve around the objectives set for the study namely; to produce OS from document analysis, and focus group discussion; to determine job responsibilities of each job title from the OS, to identify the skills in demand in the industry, critical jobs for the industry, and job title related to Industry 4.0.

4.2 Finding Analysis

This section provides the analysis of data derived from FGD and surveys conducted for this study. Finding analysis stated in this study includes jobs in demand, skills/competency in demand, emerging skills and related issues for Manufacture of Furniture industry.

4.2.1 Discussion of Results

The findings of this research were obtained from document analysis, FGD with the involvement of industry representative during the development workshops and survey, which the OS and Occupational Description (OD) of the industry is produced. The discussions have also identified the jobs and skills in demand, skills / competency in demand, emerging skills and related issues for Manufacture of Furniture industry.

For this study, a total of 46 respondents have participated in the survey. Based on the number of targeted respondents as shown in Table 3.3 in Chapter 3, the actual number of respondents involved was higher than the target number of respondents. It can be concluded that the number of respondents is sufficient to represent the industry for this research.

4.2.2 Jobs in Demand

Jobs in demand can be defined as the occupations that are required by the establishments in the industry. The demand is driven by many factors such as shortage of supply, specific skills or certifications requirement and change of government policies and initiatives. From the FGD, jobs in demand were identified and listed in the following Table 4.1.

The job titles were divided into three categories of workers, which are low-skilled workers, semi-skilled workers and skilled workers. The classification is based on MASCO's categories of workers and taking into account the definition outlined in MOSQF level descriptors.

Table 4.1: Jobs in Demand

NO.	CATEGORY OF WORKERS (JOB TITLES)	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
1	Low-Skilled Workers	Not Available	Not Available
2	Semi-Skilled Workers (CNC Machinist, Grinding Operator, Finishing Sprayer)	a) Intensive utilization of CNC Machine in production. b) Labour intensive decreasing. c) Cost effective - less production time. d) Quality upgrading/ uniformity. e) Expensive to outsource. f) Lack of competent personnel. g) High salary expectation.	a) CAD application b) CAM programming c) Machine operation manual d) Troubleshooting e) Grinding machine operation f) Saw doctoring g) Finishing equipment h) Knowledge on finishing materials type i) MSDS j) Mixing formula k) Finishing material property (Solid

NO.	CATEGORY OF WORKERS (JOB TITLES)	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
		h) Different finishing quality requirement for different market.	content, Viscosity, Gloss level) l) Latest finishing technology m) Testing equipment
3	Skilled Workers (Production Planning & Control Executive, Quality Assurance Executive, Maintenance Executive, Tooling Executive, Furniture Product Designer, French Polish Specialist)	a) Efficient utilization of material and labour. b) Increase productivity. c) Production cost control. d) Quality improvement and control. e) Different quality requirement. f) Market demand. g) Machine new technology. h) Cost saving. i) New tools type result of new machine. j) Formation of new furniture company. k) New product development. l) Shortage of skilled personnel in the furniture industry.	a) Production scheduling b) Measuring capacity of machinery and manpower. c) SOP d) Quality standard requirement e) Quality control procedure f) Material quality requirement g) Statistical quality control h) Lean management i) Mechanical & Electrical engineering j) Maintenance scheduling k) Preventive maintenance l) Corrective maintenance m) Troubleshooting

NO.	CATEGORY OF WORKERS (JOB TITLES)	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
		m) Lack of competent personnel. n) High salary expectation. o) High quality finish demand.	n) QC tools equipment calibration o) Mechanical engineering p) Machining tools q) Jigs and fixtures r) CAD s) Furniture trend t) New material familiarity u) New machinery familiarity v) Technical drawing preparation w) Knowledge on finishing materials type x) Mixing formula y) Finishing material property (Solid content, Viscosity, Gloss level) z) Environment regulation

Based on the FGD, panels suggested that there is no job in demand under low-skilled workers category. Most of the jobs in demand are under skilled workers category. For each category of worker, factors contributing to the demand were also discussed and defined. Specific requirements and skills for each category of workers were also determined by the panels.

Based on Figure 4.1, respondents agreed that the demand for skilled workers in wooden furniture manufacturing are high compared to other groups of workers. More than half of total respondents opted high demand for skilled workers, and the same number of respondents chose mid demand for semi-skilled workers. About 25% of respondents felt that low-skilled workers have low demand in the industry.

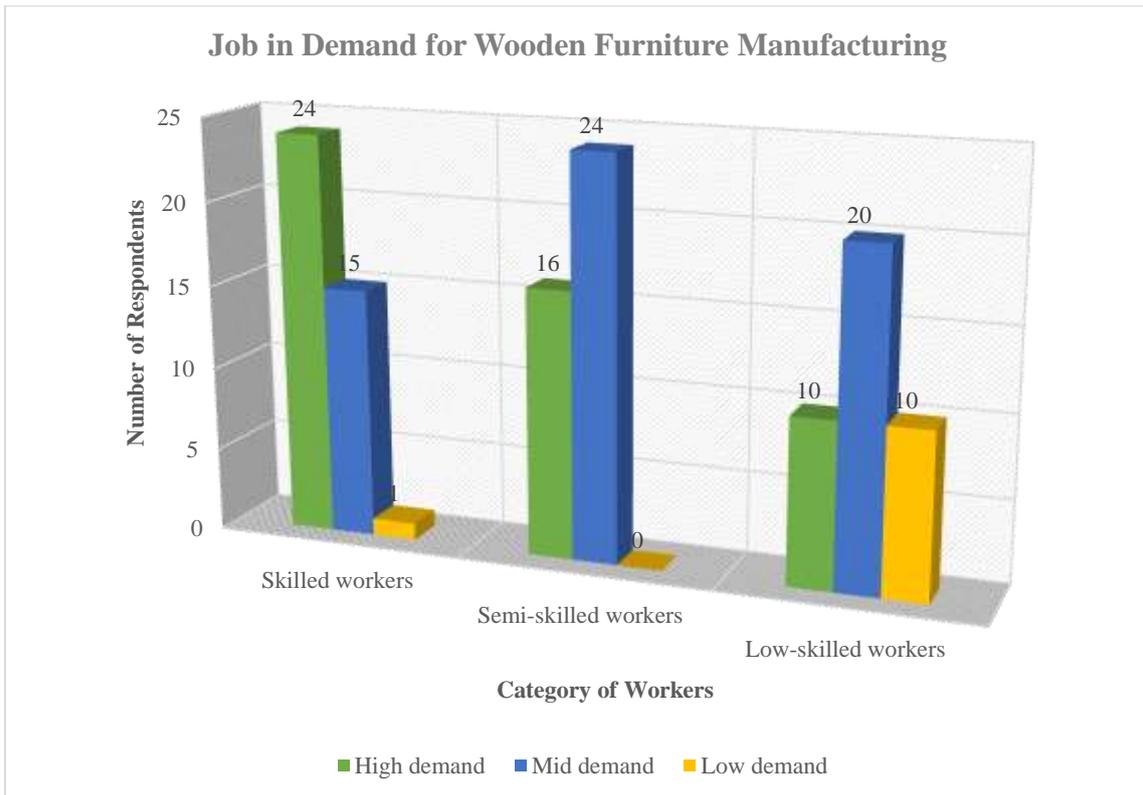


Figure 4.1: Job in Demand for Wooden Furniture Manufacturing

Based on Figure 4.2, respondents agreed that the demand for skilled workers in metal furniture manufacturing are high compared to other groups of workers. 50% of total respondents chose high demand for skilled workers, but only 8 respondents opted high demand for semi-skilled workers. More than 50% of respondents felt that low-skilled workers have mid demand in the industry.

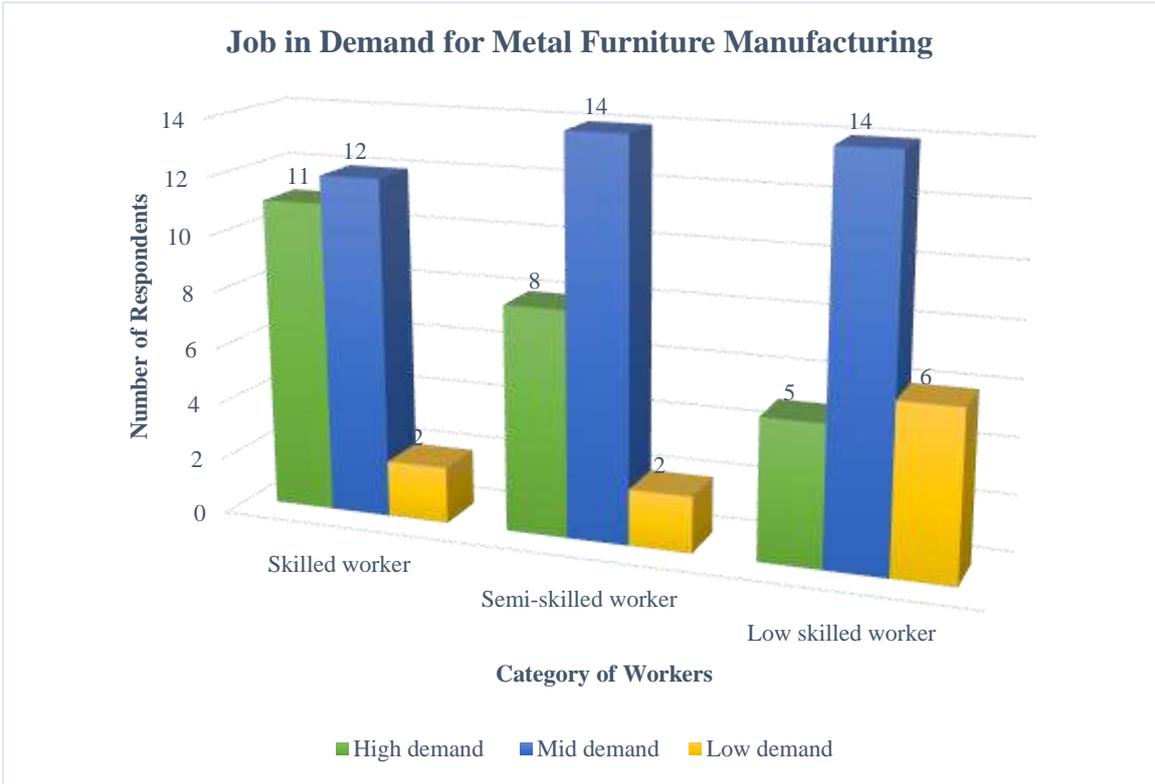


Figure 4.2: Job in Demand for Metal Furniture Manufacturing

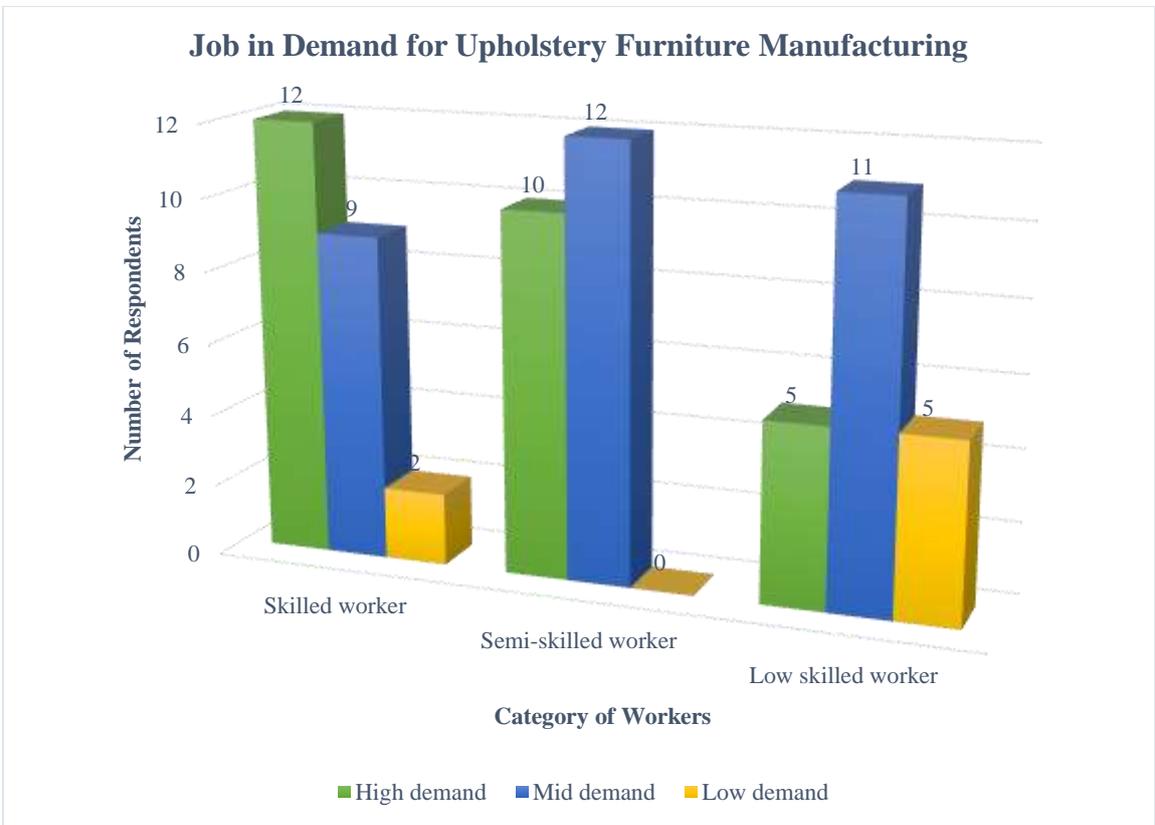


Figure 4.3: Job in Demand for Upholstery Furniture Manufacturing

Based on Figure 4.3, respondents agreed that the demand for skilled workers in upholstery furniture manufacturing are high compared to other groups of workers. Half of total respondents opted high demand for skilled workers, and the same numbers of respondent chose mid demand for semi-skilled workers. About 50% of respondents felt that low-skilled workers have mid demand in the industry.

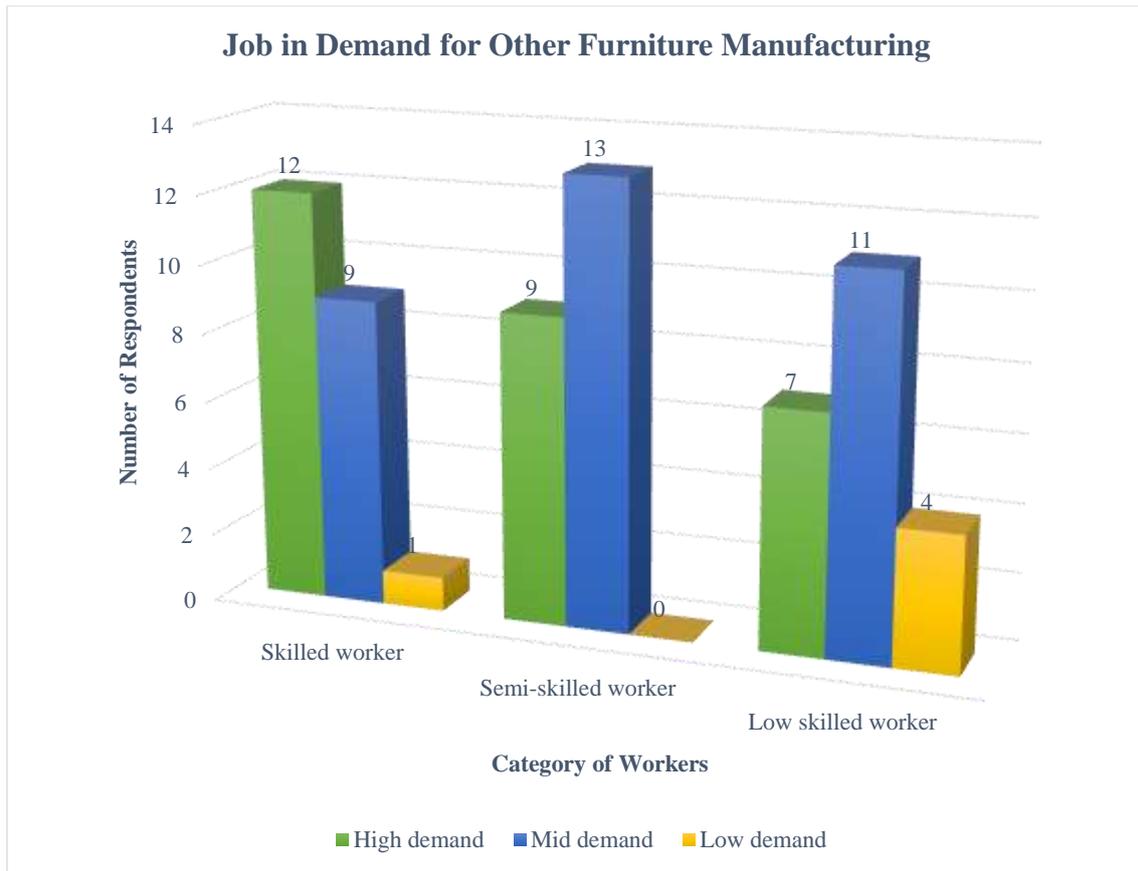


Figure 4.4: Job in Demand for Other Furniture Manufacturing

Based on Figure 4.4, respondents agreed that the demand for skilled workers in other furniture manufacturing are high compared to other groups of workers. 50% of total respondents opted high demand for skilled workers, and the same percentage of respondent chose mid demand for semi-skilled workers. 11 respondents felt that low-skilled workers have mid demand in the industry.

Based on the FGD and the survey conducted, the findings from both exercises are clearly correlated. Jobs in demand that were identified during FGD are supported by the

survey findings. The identified jobs were included in the respective job area that are defined as in demand by the respondents.

The following Table 4.2 shows the mapping between critical jobs title determined in this OF with e-Masco and COL. This activity was conducted to support the findings of the study, particularly on the critical jobs' identification. From the mapping, 6 job titles were found in all the three lists; 3 job titles matched in 2 lists, either with e-MASCO or COL; and the balance 15 job titles, were not in the e-MASCO neither COL.

Table 4.2: Occupational Structure versus e-Masco versus Critical Occupational List (COL)

AREA	JOB TITLES	OCCUPATIONAL STRUCTURE	E-MASCO	COL
Wooden Furniture Manufacturing (Final Milling)	CNC Machinist	√	√	√
Wooden Furniture Manufacturing (Finishing)	Senior Finishing Sprayer	√		
Wooden Furniture Manufacturing (Product Development)	Product Development Manager	√	√	√
	Product Development Executive	√		
	Designer	√	√	
Wooden Furniture Manufacturing (Quality Assurance)	Quality Assurance Manager	√		
	Quality Assurance Executive	√		

AREA	JOB TITLES	OCCUPATIONAL STRUCTURE	E-MASCO	COL
Wooden Furniture Manufacturing (Production Planning and Control)	PPC Officer	√		
Wooden Furniture Manufacturing (Maintenance)	Maintenance Executive	√		
	Technician	√	√	√
	Machinist	√	√	√
Wooden Furniture Manufacturing (Tooling)	Tooling Executive	√		
	Tooling Technician	√		
	Grinding Operator	√	√	
Cane Furniture Manufacturing (Cane Weaving)	Senior Cane Weaver	√		
Metal Furniture Manufacturing (Fabrication)	Fabrication Supervisor	√		√
	Senior Fabrication Operator	√		
Metal Furniture Manufacturing (CNC Machining)	Senior CNC Machinist	√	√	√
	CNC Machinist	√		
Metal Furniture Manufacturing (Powder Coating)	Machinist	√	√	√

AREA	JOB TITLES	OCCUPATIONAL STRUCTURE	E-MASCO	COL
Plastic Furniture Manufacturing (Tooling)	Tooling Technician	√		
	Tooling Operator	√		
Plastic Furniture Manufacturing (R&D)	R&D Executive	√		
	R&D Officer	√		

4.2.3 Competency in Demand

The current workers require other training programs/schemes such as management, supervisory and social skills beside the skills that they possess in order to enhance their knowledge and skills.

Table 4.3: Skills/Competency in Demand

NO.	SKILLS AND COMPETENCY IN DEMAND	SUB-SECTOR - JOB AREA/ JOB TITLES RELATED	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
1.	a. Competent in using latest technology b. Programming language competency c. Trouble-shooting / problem solving skills	i. Finishing Line Technician ii. CNC Machinist iii. PPC Executive iv. QA Executive	i. No established written procedure on handling such product ii. No established written material on latest technology for reference	i. Training on related or similar areas ii. Review of training syllabus at training centre/ provider iii. Joint venture with industry player to

NO.	SKILLS AND COMPETENCY IN DEMAND	SUB-SECTOR - JOB AREA/ JOB TITLES RELATED	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
		v. Maintenance Executive vi. Tooling Executive vii. Finishing Chemist iii. Product Designer	iii. Expensive Equipment and software licenses	provide facilities and exposure iv. Invite industry player to jointly carry out programs
2.	a. Product Costing skills	i. Product Development Executive ii. Production Executive	i. No established written procedure on handling such product ii. Lack of hands on experience on process iii. No structured system to transfer skill to new successor iv. Lack of exposure on process	i. Training on related or similar areas ii. Review of training syllabus at training centre/ provider iii. Joint venture with industry player to provide exposure
3.	a. Specialized technical skill	i. Grinding Operator ii. Carver iii. French polish specialist	i. Lack of hands on experience on process ii. No structured system to	i. Training on related or similar areas ii. Review of training syllabus

NO.	SKILLS AND COMPETENCY IN DEMAND	SUB-SECTOR - JOB AREA/ JOB TITLES RELATED	FACTOR(S) CONTRIBUTING TO THE DEMAND	SPECIFIC REQUIREMENTS AND SKILLS
		iv. Sample maker	transfer skill to new successor iii. Lack of exposure on process	at training centre/provider

Table 4.3 specifies the skills in demand in manufacture of furniture industry based on FGD. To confirm the FGD findings, a survey was conducted on the subject and its results are shown in the Figure 4.5. Based on the survey, the top five of skills in demand are product knowledge, quality assurance, raw material selection and procurement, production operations and finishing operations. The survey results slightly different from that proposed by the FGD. Other skills in demand suggested by FGD panels such as product costing, competent in using computerized devices and strong technical aptitude were categorised as moderate in demand by respondents. Descriptions of the skills can be referred as follows:

a) Product knowledge

The ability to communicate information and answer questions about company's products. It is considered an important knowledge area for any role in a company.

b) Product costing

The accounting process of determining all business expenses pertaining the creation of company products. These costs can include raw material purchases, worker wages and transportation.

c) Raw material selection and procurement

The skill of selecting raw materials to be used in the manufacture of furniture and how to obtain them.

d) Production operations

The area of management that concerned with designing and controlling the process of production and redesigning business operations in the production of furniture.

e) Finishing operations

Skill in furniture finishing in determining the right methods and materials for specific furniture. Being aware of the latest technology in furniture finishing is a must.

f) Quality assurance

The way of preventing mistakes and defects in manufactured furniture and avoiding problems when delivering furniture to customers.

g) Competent in using computerised devices

Proficiency in the use of any electronic equipment controlled by a CPU, including desktop and laptop computers, smartphones and tablets. It usually refers to a general-purpose device that can accept software for many purposes.

h) Troubleshoot/problem solving skills

A systematic approach to problem solving that is often used to find and correct issues with machines, electronics and applications.

i) Strong technical aptitude

Specific skill in ensuring consistent, high-visibility, tactical success with constant focus on customer satisfaction.

j) Communication skill

The ability to convey information to another effectively and efficiently.

k) English language literacy

Skills in speaking and understanding in English at work.

l) Technopreneur skill

The skills of an entrepreneur who embraces technology savvy, creative, innovative, dynamic, dares to be different and take the unexplored path, and very passionate about their work.

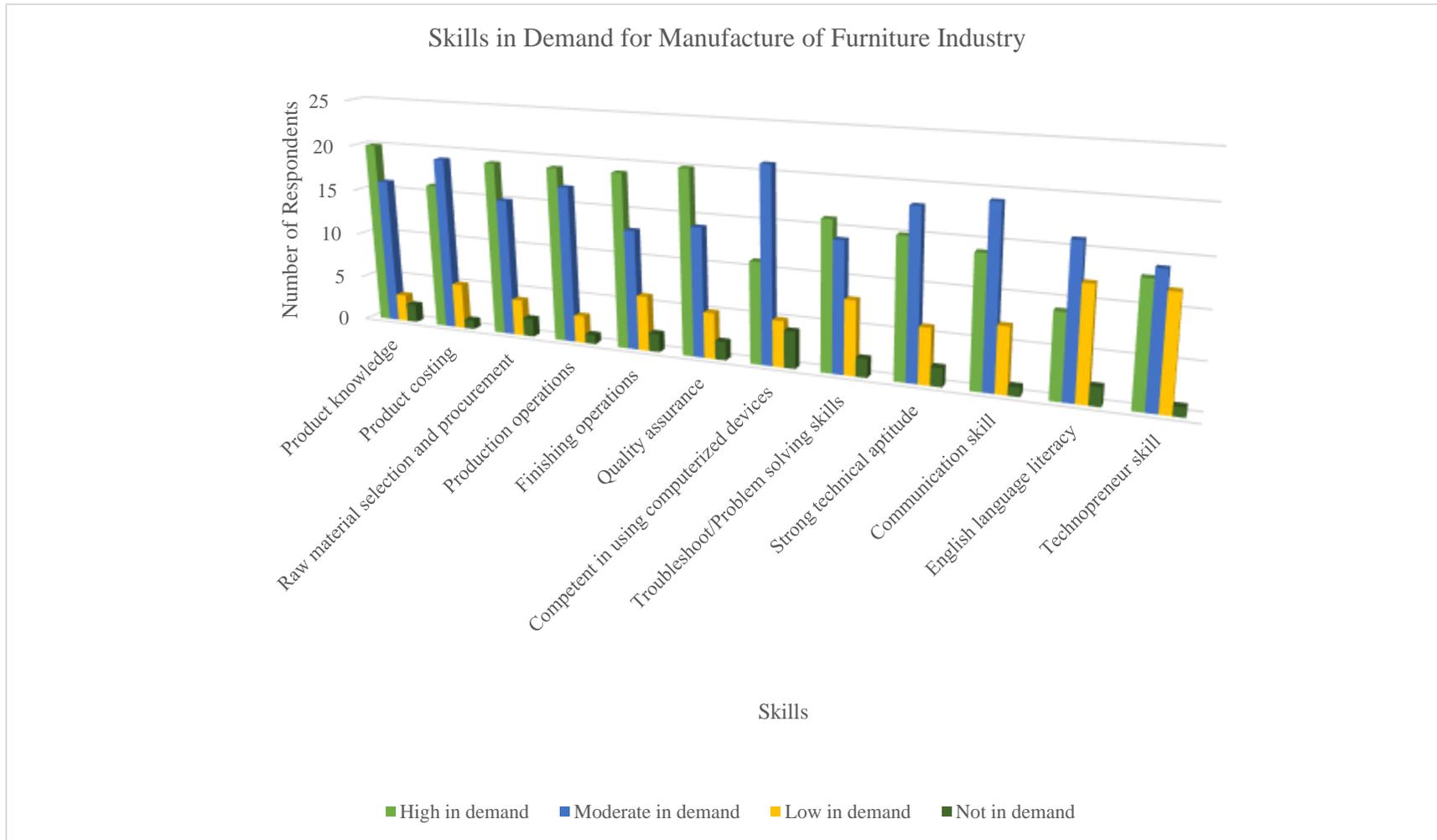


Figure 4.5: Skills in Demand for Manufacture of Furniture Industry

4.2.4 Emerging Skills

Emerging Skills are skills that are predicted to be imperative to the industry in the near future based on recent development, trend or study. Based on focus group discussion, the emerging skills related to Industry 4.0 are listed in table 4.4.

Table 4.4: Emerging Skills

No.	EMERGING SKILLS	JOB TITLES RELATED TO I 4.0	REASON OF REQUIRED EMERGING SKILLS
1	Industry 4.0 related skills: a) Autonomous robot b) Big data analytics c) Cloud computing d) Internet of Things e) Additive Manufacturing f) System Integration g) Cybersecurity h) Augmented Reality i) Simulation	a) Finishing Line Technician b) CNC Machinist c) PPC Executive d) QA Executive e) Maintenance Executive f) Tooling Executive g) Finishing Chemist h) Product Designer	a) To implement 5-Axis spraying system. b) To convert fully automation in manufacturing. c) Increase productivity, reduce cost and improve efficiency. d) Minimize human error. e) For fast decision making. f) Increase process effectiveness. g) Quality improvement.

Based on FGD findings, as shown in Table 4.4, Senior CNC Machinist and PPC Executive are two job titles currently related to Industry 4.0. Five other job titles are identified as emerging jobs for Industry 4.0 namely Auto-Finishing Line Technician,

Quality Assurance (QA) Executive, Maintenance Executive, Tooling Executive and Product Designer.

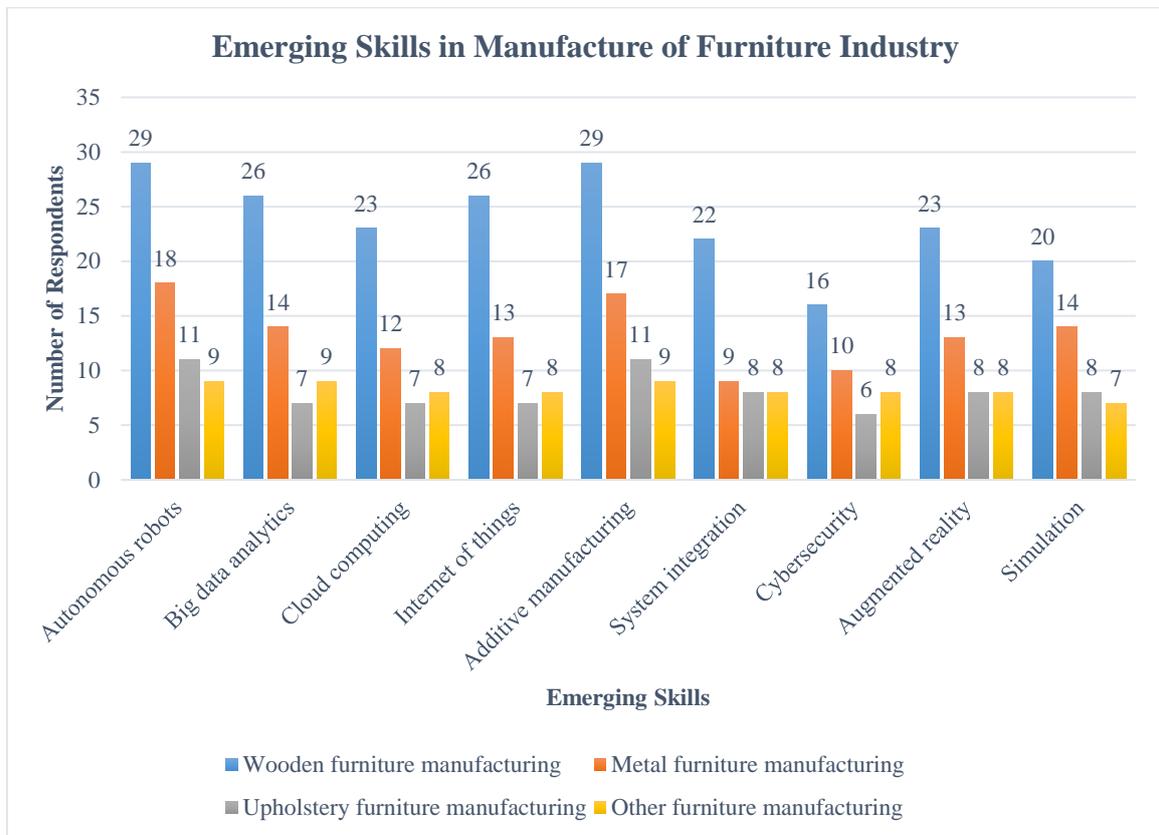


Figure 4.6: Emerging Skills in Manufacture of Furniture Industry

Based on Figure 4.6 above, respondents agreed that all the listed emerging skills are true, especially for wooden furniture manufacturing. All of the skills listed in this study are very critical in ensuring that the industry, as a whole, is well prepared for the advent of Industry 4.0.

4.2.5 Related Issues in Manufacture of Furniture Industry

This section explores the common issues surrounding the industry. The related issues in the industry are identified in FGD. List of the key issues are depicted in Table 4.5. Based on the list and further discussion, FGD panels suggested ten key issues to be put in the survey. Results of the survey regarding related issues are shown in Figure 4.7, Figure 4.8, Figure 4.9 and Figure 4.10.

Table 4.5 Related Issues

NO.	KEY ISSUES	REASON	SUGGESTION
1.	Dependency on foreign labour	<ul style="list-style-type: none"> a) Flexible on working time. b) Lack of interest for local labour. c) Acceptance of minimum wages. 	<ul style="list-style-type: none"> a) Incentive and intervention from government. b) Awareness of furniture manufacturing.
2.	Insufficient manpower	<ul style="list-style-type: none"> a) Demanding work condition. b) 3D (Dirty, Dangerous, Difficult). c) Unattractive wages and fringe benefits. 	<ul style="list-style-type: none"> a) Improve work condition. b) Incentive and intervention from government. c) Improve wages.
3.	Manpower skill	Mismatch between skills training and industry requirements.	Enhancing TVET and education syllabus, short term course and long term course.
4.	High labour turnover	<ul style="list-style-type: none"> a) Lack of interest b) Contract workers 	<ul style="list-style-type: none"> a) Employ part time workers. b) Government intervention.
5.	Factory location	<ul style="list-style-type: none"> a) Urbanisation-competition of getting manpower. b) Sub-urban- low manpower skill, low availability. 	Government intervention and incentives.

NO.	KEY ISSUES	REASON	SUGGESTION
6	Material price	a) Increasing in material price. b) Price depends on volume.	a) Government intervention and incentives. b) Price control.
7.	Material supplies controlled by supplier	a) Material not available during festive season. b) Purchasing through exclusive agent or distributor.	a) Government intervention and incentives. b) Price control.
8.	Work pressure	a) Non-conductive environment. b) Inconsistent order-short production lead time.	Conductive environment 5S, Lean Management.
9.	Business creativity	a) Changing in market trend. b) Demand of new material. c) Competition from imported products.	Impose control on imported furniture.
10.	Sustainability	Low recovery ratio.	a) Reforestation b) R&D c) New material usage d) FSC, PEFC e) Hybrid
11.	Technical Training	a) Training duration too long.	a) Enhancing TVET and education syllabus, short term

NO.	KEY ISSUES	REASON	SUGGESTION
		b) Mismatch between training and industry requirement	<p>courses and long term course.</p> <p>b) Customize short term training.</p> <p>c) Focus on current skill requirement.</p>
12.	Production overhead	<p>a) High salary expectation at entry level.</p> <p>b) Government regulations.</p>	<p>a) Impose Industry 4.0.</p> <p>b) Government intervention and incentives.</p>
14.	Industry 4.0	<p>a) Expensive</p> <p>b) Lack of skill</p> <p>c) Imported machinery</p>	<p>a) Create local made machine</p> <p>b) Government intervention and incentives.</p>

Figure 4.7 shows that more than 80 per cent respondents agreed the issues related to manufacturing of wooden furniture as per listed in the questionnaire. High dependency on work labour was the most selected issue by the respondents. For metal furniture, technological changes was the most selected as strongly agreed by the respondents, as depicted in Figure 4.8. Figure 4.9 shows the issues on government policy/regulation, low skilled and low performance workforce and insufficient manpower were the most popular choices to represent issues related to manufacturing of upholstery furniture. For other furniture, Figure 4.10 shows that the respondents chose labour costs (wages) and high dependency on work labour as the main issues.

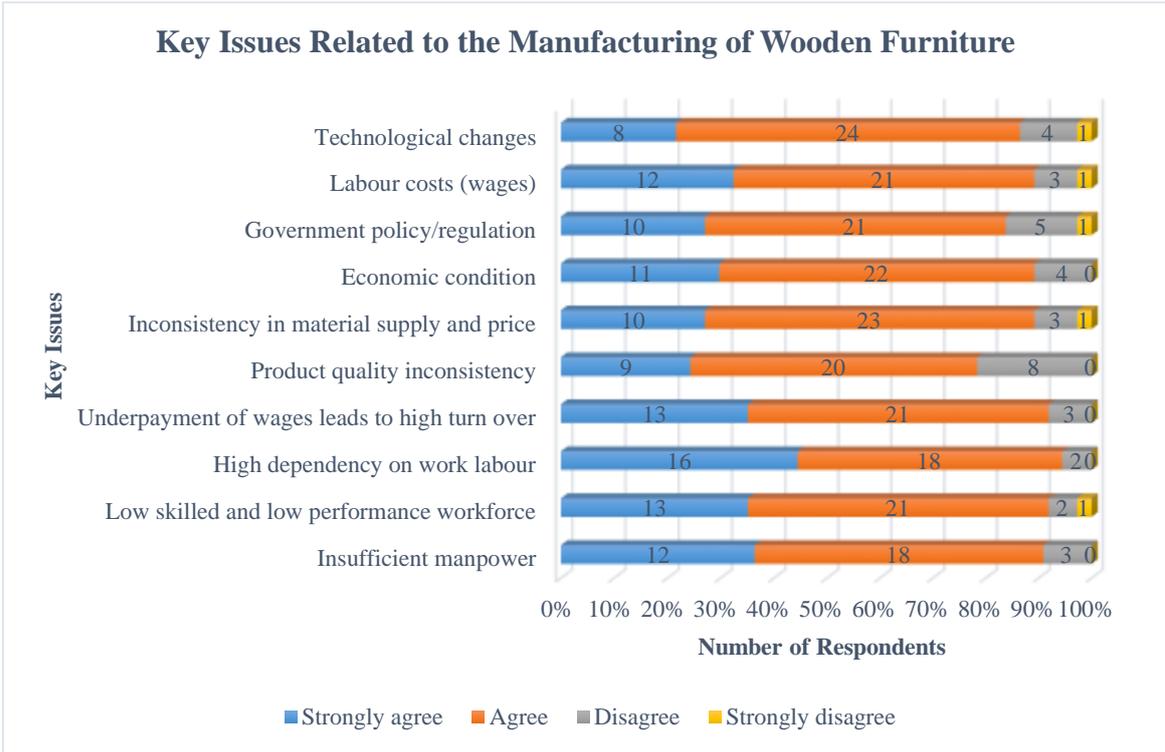


Figure 4.7: Key Issues Related to the Manufacturing of Wooden Furniture

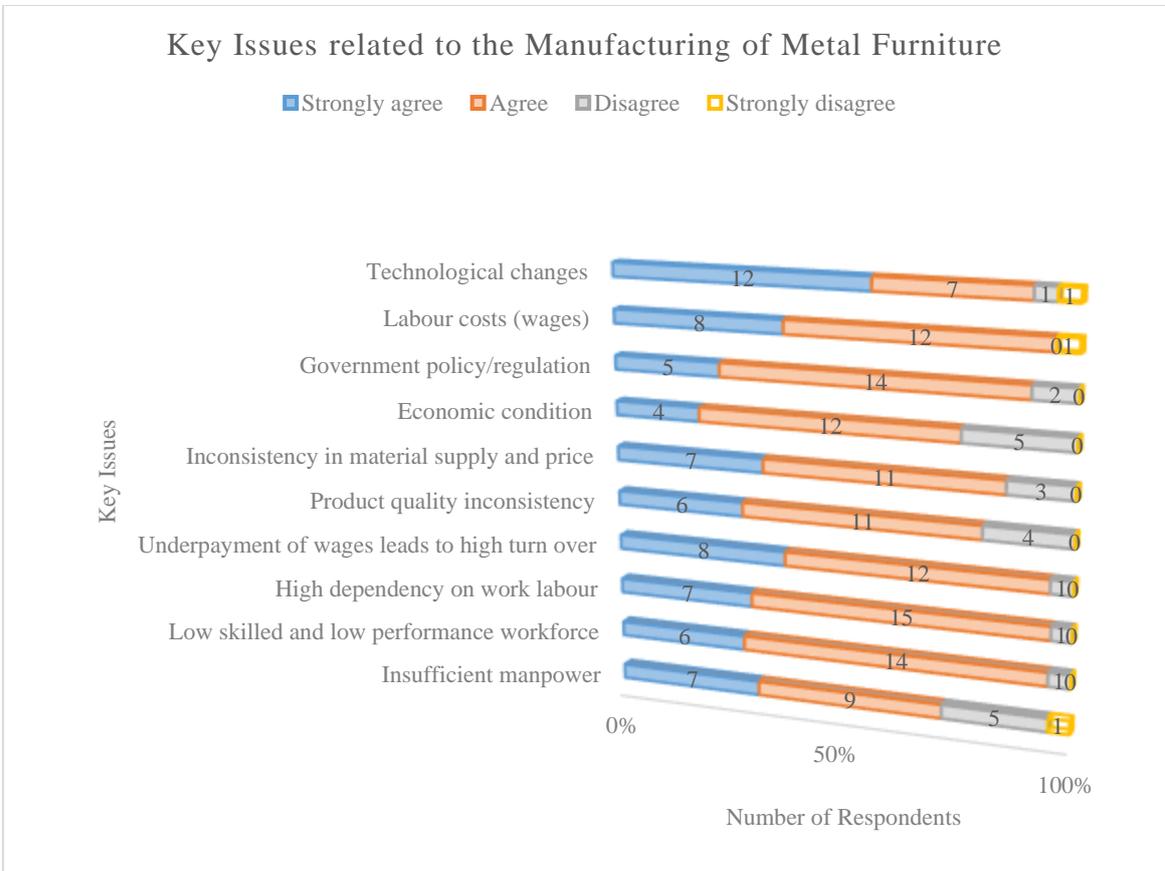


Figure 4.8: Key Issues Related to the Manufacturing of Metal Furniture

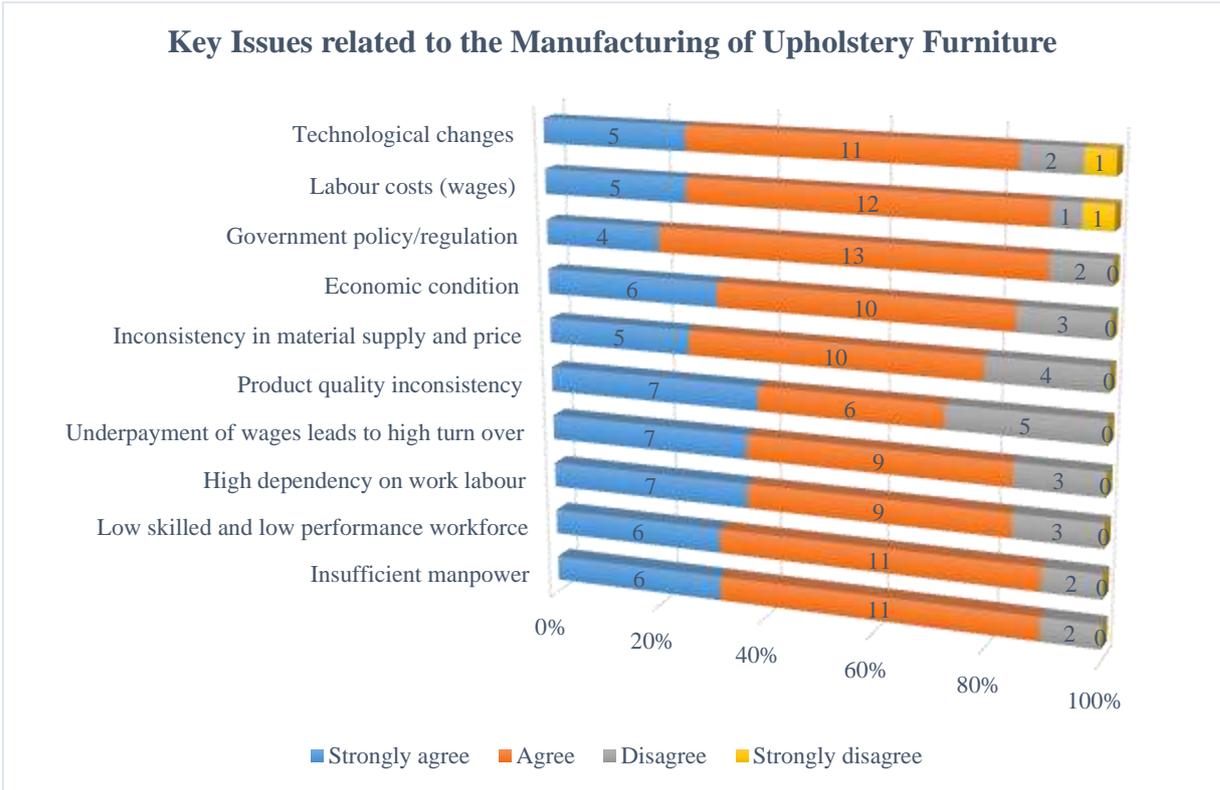


Figure 4.9: Key Issues Related to the Manufacturing of Upholstery Furniture

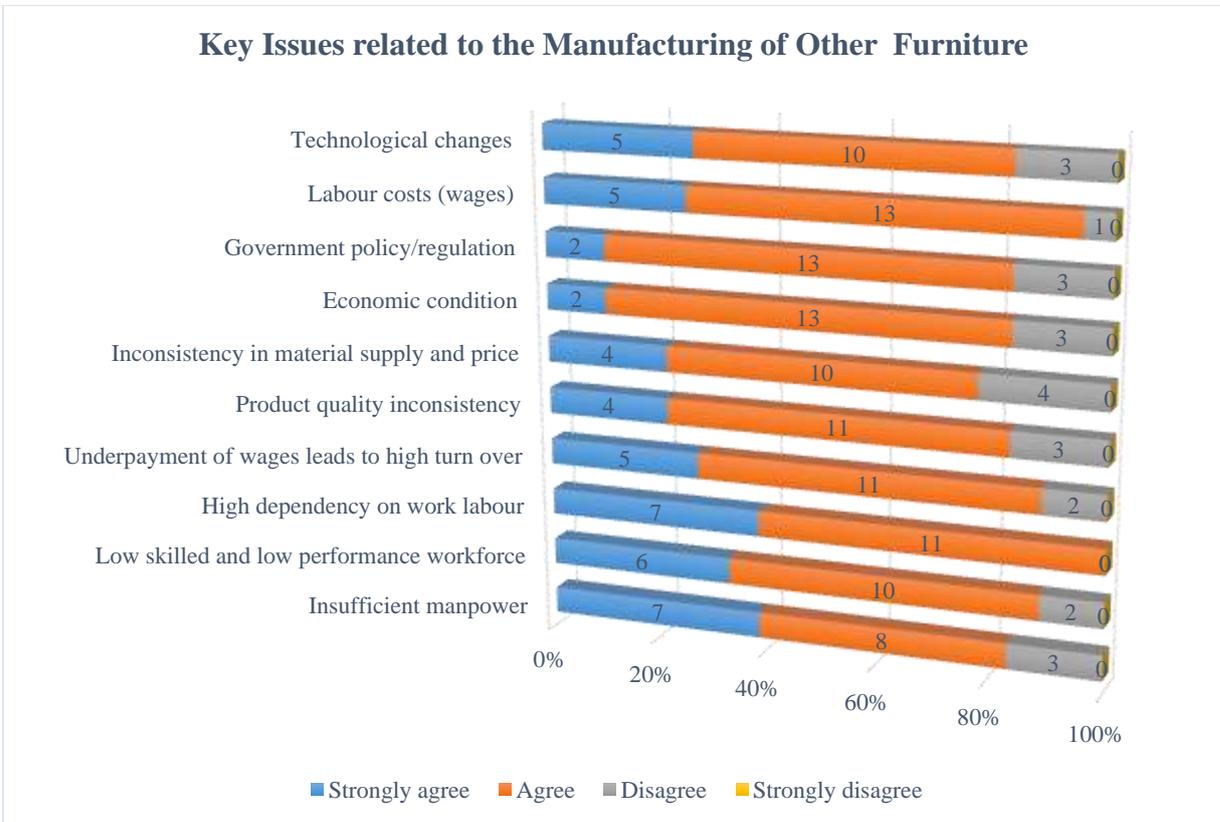


Figure 4.10: Key Issues Related to the Manufacturing of Other Furniture

Based on the survey findings, collectively, more than 90 per cent of respondents from the four areas of furniture manufacturing strongly agreed or agreed with the issues that were identified by the FGD panels. Arguably, the issues that are listed in this study are the real issues happening in the industry. Proactive measures need to be taken immediately to ensure that these issues can be contained and resolved.

4.3 Comparative Study Analysis

According to Centre for Industrial Studies (CSIL) the aggregate furniture production for the world (at production prices, excluding retail mark-up) is currently about USD420 billion. This means the inclusion of virtually all countries that are significant for the furniture industry. CSIL coverage includes 40 countries in Europe, 18 countries in the Americas, 21 in Middle East and Africa and 21 in Asia and the Pacific. The main furniture producer is China, with 39% of world furniture production. Other major furniture manufacturing countries are the US (12 per cent), Germany (5 per cent), Italy (4 per cent), India, Poland, Japan, Vietnam, the UK and Canada. The leading importers of furniture are the United States, Germany, the United Kingdom, France and Canada.

4.3.1 United States of America (USA)

The furniture industry is broken down into retail stores, office furniture merchants, warehouse showrooms, and specialty furniture. According to the US Census Bureau, there are approximately over 87,000 establishments bringing in annual revenue of USD120 million a year and employing more than 500,000 employees. The total market size of the furniture industry, accounting for related accessories, floor coverings, and draperies operate within a USD30 billion industry. The value of all furniture and furnishing store sales in the United States net at USD106.78 billion.

4.3.2 China

As the standard of living continues to improve in China people are becoming increasingly willing to invest in home decoration. Consumers' increasing purchasing power has driven the furniture market to develop in leaps and bounds. According to figures released by

the National Bureau of Statistics, in the first three quarters of 2018, the total sales of furniture manufacturing enterprises grew 6.4 per cent year-on-year to CNY543.01 billion (USD86.88 billion), while total profits grew 4.0 per cent year-on-year to CNY30.48 billion (USD4.88 billion).

As China's leading policy of stimulating domestic demand in the years to come, urbanisation is bound to drive furniture market growth. Data from the National Bureau of Statistics shows that the urbanisation rate in China reached 59.6 per cent in 2018, up 1.1 percentage points over the end of 2017. In this urbanisation process, wage and salary earners, as well as peasant families who have settled in towns and cities, have become major furniture consumer groups. Apart from domestic sales, China's furniture exports also show sustained growth. According to statistics from the General Administration of Customs, exports of China's furniture and furniture parts amounted to USD53.69 billion in 2018, up 7.6 per cent year-on-year.

4.3.3 Germany

The year 2018 was not a peaceful year for the German furniture industry. However, the annual sales figure showed an increase of 0.7 per cent, nearly reaching a value of €18 billion (USD19.8 Billion). Looking at the categories, there was a significant growth of 6% in sales for office, shop and kitchen furniture manufacturers, while the demand for classic home furniture decreased by 3.5 per cent.

Another interesting aspect is about the demand from foreign countries. The "Made in Germany" continued to thrive, driven by a 0.9 per cent rise in sales. On top of that, these positive numbers led to the creation of nearly 700 new jobs over the year 2018, accounting for a total of 84,613 people from 480 companies for the German furniture industry.

The following Table 4.6 shows the comparison between Malaysia, United States, China and Germany in term of furniture export value, number of establishments and employment statistics.

Table 4.6: Comparative Analysis between Malaysia, United States, China and Germany

	Furniture Export Value²⁸	Number of Establishment	Employment Statistics
 Malaysia	USD2.34 Billion	2,521	95,737
 United States²⁹	USD11.8 Billion	87,000	500,000
 China³⁰	USD93.4 Billion	65,000	5 Million
 Germany	USD18.2 Billion	480	84,613

4.4 Occupational Structure (OS)

Occupational Structures (OS) for 3 Digits MSIC 2008 Group 310: Manufacture of furniture are shown in Table 4.7 to 4.13. OS can be defined as a job classification, whereby similar or related occupations are group together according to specific criteria such as skills, functions and employment based on MSIC 2008 Group. The OS for manufacture of furniture industry comprise job area of Wooden Furniture Manufacturing,

²⁸ Top furniture exporting countries 2014 (2014) <https://www.worldatlas.com/articles/top-furniture-exporting-countries-2014.html> [7 October 2019]

²⁹ 45 furniture industry statistics and trends (2017) <https://brandongaille.com/44-furniture-industry-statistics-and-trends/> [7 October 2019]

³⁰ China's furniture industry today (2004) https://www.researchgate.net/publication/290297408_China's_furniture_industry_today [7 October 2019]

Upholstery of Furniture, Cane Furniture Manufacturing, Metal Furniture Manufacturing and Plastic Furniture Manufacturing. For every job area, specific OS was developed according to the major section in the furniture manufacturing set up. Currently, highest occupational level for all job areas are at Level 5. FGD panels agreed that Level 6 and 7 are for top management levels and Level 8 is currently non-existent in most furniture manufacturing factories in Malaysia, which commonly has less than 100 workers.

The common job title for Level 5 in all areas in the Manufacture of Furniture is normally called Production Manager, which is responsible to oversee the whole production activities, from material preparation until finishing of furniture products. Other Level 5 manager commonly found in all areas is Quality Assurance Manager. Product Development Manager commonly found in Wooden Furniture Manufacturing, Upholstery of Furniture and Manufacture of Metal Furniture Manufacturing. Production Planning and Control (PPC) Manager and Maintenance Manager commonly found in Wooden Furniture and Metal Furniture Manufacturing. While Research and Development (R&D) Manager is found in Plastic Furniture Manufacturing. This unit or department manager responsible in planning, leading, monitoring and controlling the unit activities and liaise with Production Manager on operational aspects.

As for Level 4, Production Executive is commonly found in all areas in Manufacture of Furniture with main function to assist the Production Manager in the whole production activities. In bigger factories especially in areas of Wooden Furniture Manufacturing and Metal Furniture Manufacturing, the Production Executive is in charge in monitoring its production unit such as Rough Milling section and Material Preparation section, respectively. Finishing Executive is also commonly found in Wooden Furniture Manufacturing, Upholstery of Furniture, Cane Furniture Manufacturing and Metal Furniture Manufacturing. Finishing Executive of Wooden Furniture Manufacturing is in charge in monitoring the sanding and finishing sections. Quality Assurance Executive, Product Development Executive, PPC Executive, Maintenance Executive and R&D Executive are commonly found in Manufacture of Furniture to assist the respective unit or department manager.

As for Level 3, most job titles in all areas of Manufacture of Furniture is responsible to supervise or lead the technical aspects of its production unit. In Wooden Furniture Manufacturing, for example, there are Rough Milling Supervisor, Lamination Supervisor, Assembly Supervisor and Sanding Supervisor to monitor day to day of its unit operation. Senior CNC Machinist supervises the Final Milling operation, while Senior Finishing Sprayer supervises the finishing section. There are several other different job titles in other production unit or sections which has similar function and responsibilities of Level 3 personnel.

Critical job titles were also identified in all furniture manufacturing job area. Critical jobs are defined as:

- a) Sought after (in demand – occupation hard to fill).
- b) Strategic to the manufacture of furniture industry.
- c) Skilled (require specific skill experience).

Hence, proper training programs for the jobs need to be developed and implemented according to industry standards and requirements. Jobs relevant to Industry 4.0 were also identified by the FGD panels. These jobs can normally be found in big factories or establishments, which are using high technology solution such as CNC machines and auto-spraying lines.

Table 4.7: Group 310 Occupational Structure (1 of 7)

SECTION	(C) MANUFACTURING					
DIVISION	(31) MANUFACTURE OF FURNITURE					
GROUP	(310) MANUFACTURE OF FURNITURE					
AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)	Wooden Furniture Manufacturing (Assembly)	Wooden Furniture Manufacturing (Sanding)	Wooden Furniture Manufacturing (Finishing)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager
LEVEL 4	Production Executive	Production Executive	Production Executive	Production Executive	Finishing Line Executive	Finishing Line Executive
LEVEL 3	Rough Milling Supervisor	Lamination Supervisor	Senior CNC Machinist**	Assembly Supervisor	Sanding Supervisor	Senior Finishing Sprayer*
LEVEL 2	Rough Milling Line Leader	Lamination Line Leader	CNC Machinist*	Assembly Line Leader	Sanding Line Leader	Finishing Sprayer
LEVEL 1	Machine Operator	Lamination Operator	Machine Operator	Assembly Operator	Sanding Operator	No Level

Note: *Critical Job Title

**Jobs relevant to Industry 4.0

Table 4.8: Group 310 Occupational Structure (2 of 7)

SECTION	(C) MANUFACTURING					
DIVISION	(31) MANUFACTURE OF FURNITURE					
GROUP	(310) MANUFACTURE OF FURNITURE					
AREA	Wooden Furniture Manufacturing (Product Development)	Wooden Furniture Manufacturing (Sample Making)	Wooden Furniture Manufacturing (Quality Assurance)	Wooden Furniture Manufacturing (Production Planning and Control)	Wooden Furniture Manufacturing (Maintenance)	Wooden Furniture Manufacturing (Tooling)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Product Development Manager*	Product Development Manager	Quality Assurance Manager*	Production Planning and Control Manager	Maintenance Manager	Maintenance Manager
LEVEL 4	Product Development Executive*	Product Development Executive	Quality Assurance Executive*	Production Planning and Control Executive**	Maintenance Executive*	Tooling Executive*
LEVEL 3	Product Designer*	Senior Sample Maker	Quality Inspector	Production Planning and Control Officer*	Maintenance Technician*	Tooling Technician*
LEVEL 2	Draughtsman	Sample Maker	No Level	No Level	Machinist*	Grinding Operator*
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level

Note: *Critical Job Titles

**Jobs relevant to Industry 4.0

Table 4.9: Group 310 Occupational Structure (3 of 7)

SECTION	(C) MANUFACTURING						
DIVISION	(31) MANUFACTURE OF FURNITURE						
GROUP	(310) MANUFACTURE OF FURNITURE						
AREA	Upholstery of Furniture (Frame Making)	Upholstery of Furniture (Construction & Assembly)	Upholstery of Furniture (Upholstering)	Upholstery of Furniture (Finishing)	Upholstery of Furniture (Maintenance)	Upholstery of Furniture (Product Development)	Upholstery of Furniture (Quality Assurance)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Production Manager	Production Manager	Production Manager	Production Manager	Maintenance Manager	Product Development Manager	Quality Assurance Manager
LEVEL 4	Production Executive	Production Executive	Production Executive	Production Executive	Maintenance Executive	Product Development Executive	Quality Assurance Executive
LEVEL 3	Senior Frame Maker	Senior Assembler	Senior Upholsterer	Senior Finishing Sprayer	Maintenance Technician	Product Designer	Quality Inspector
LEVEL 2	Frame Maker	Assembler	Upholsterer	Finishing Sprayer	No Level	Draughtsman	No Level
LEVEL 1	Material Preparation Operator	Material Preparation Operator	Material Preparation Operator	No Level	No Level	No Level	No Level

Table 4.10: Group 310 Occupational Structure (4 of 7)

SECTION	(C) MANUFACTURING						
DIVISION	(31) MANUFACTURE OF FURNITURE						
GROUP	(310) MANUFACTURE OF FURNITURE						
AREA	Cane Furniture Manufacturing (Material Preparation)	Cane Furniture Manufacturing (Steam Bending)	Cane Furniture Manufacturing (Shaping)	Cane Furniture Manufacturing (Cane Weaving)	Cane Furniture Manufacturing (Construction & Assembly)	Cane Furniture Manufacturing (Finishing)	Cane Furniture Manufacturing (Quality Assurance)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Quality Assurance Manager
LEVEL 4	Production Executive	Production Executive	Production Executive	Production Executive	Production Executive	Finishing Executive	Quality Assurance Executive
LEVEL 3	Production Supervisor	Production Supervisor	Production Supervisor	Senior Cane Weaver*	Senior Assembler	Senior Finisher	Quality Inspector
LEVEL 2	Senior Production Operator	Steam Bending Operator	Shaping Operator	Cane Weaver	Assembler	Finisher	No Level
LEVEL 1	Production Operator	No Level	No Level	No Level	No Level	Material Preparation Operator	No Level

Note: *Critical Job Titles

Table 4.11: Group 310 Occupational Structure (5 of 7)

SECTION	(C) MANUFACTURING							
DIVISION	(31) MANUFACTURE OF FURNITURE							
GROUP	(310) MANUFACTURE OF FURNITURE							
AREA	Metal Furniture Manufacturing (Material Preparation)	Metal Furniture Manufacturing (Fabrication)	Metal Furniture Manufacturing (Bending)	Metal Furniture Manufacturing (CNC Machining)	Metal Furniture Manufacturing (Welding)	Metal Furniture Manufacturing (Jig Making)	Metal Furniture Manufacturing (Mould Making)	Metal Furniture Manufacturing (Sand Blasting)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager
LEVEL 4	Production Executive	Production Executive	Production Executive	Production Executive	Production Executive	Production Executive	Production Executive	Production Executive
LEVEL 3	Material Preparation Supervisor	Fabrication Supervisor*	Senior Bending Operator	Senior CNC Machinist*	Senior Welder	Senior Jig Maker	Senior Mould Maker	Sand Blasting Supervisor
LEVEL 2	Senior Machine Operator	Senior Fabrication Operator*	Bending Operator	CNC Machinist*	Welder	Jig Maker	Mould Maker	Senior Sand Blasting Operator
LEVEL 1	Material Preparation Operator	Fabrication Operator	No Level	No Level	Spot Welding Operator	No Level	No Level	Sand Blasting Operator

Note: *Critical Job Titles

Table 4.12: Group 310 Occupational Structure (6 of 7)

SECTION	(C) MANUFACTURING							
DIVISION	(31) MANUFACTURE OF FURNITURE							
GROUP	(310) MANUFACTURE OF FURNITURE							
AREA	Metal Furniture Manufacturing (Dipping)	Metal Furniture Manufacturing (Spraying)	Metal Furniture Manufacturing (Powder Coating)	Metal Furniture Manufacturing (Assembly)	Metal Furniture Manufacturing (Product Development)	Metal Furniture Manufacturing (Production Planning Control)	Metal Furniture Manufacturing (Quality Assurance)	Metal Furniture Manufacturing (Maintenance)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Production Manager	Production Manager	Production Manager	Production Manager	Product Development Manager	Production Planning and Control Manager	Quality Assurance Manager	Maintenance Manager
LEVEL 4	Finishing Executive	Finishing Executive	Finishing Executive	Assembly Executive	Product Development Executive	Production Planning and Control Executive	Quality Assurance Executive	Maintenance Executive
LEVEL 3	Dipping Supervisor	Senior Finishing Sprayer	Machinist*	Assembly Supervisor	Product Designer	Production Planning and Control Officer	Quality Inspector	Maintenance Technician
LEVEL 2	Senior Dipping Operator	Finishing Sprayer	No Level	Senior Assembler	Draughtsman	No Level	No Level	No Level
LEVEL 1	Dipping Operator	No Level	No Level	Assembling Operator	No Level	No Level	No Level	No Level

Note: *Critical Job Titles

Table 4.13: Group 310 Occupational Structure (7 of 7)

SECTION	(C) MANUFACTURING					
DIVISION	(31) MANUFACTURE OF FURNITURE					
GROUP	(310) MANUFACTURE OF FURNITURE					
AREA	Plastic Furniture Manufacturing (Injection Moulding)	Plastic Furniture Manufacturing (Jig Making)	Plastic Furniture Manufacturing (Mould Making)	Plastic Furniture Manufacturing (Tooling)	Plastic Furniture Manufacturing (Research and Development)	Plastic Furniture Manufacturing (Quality Assurance)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Production Manager	Production Manager	Production Manager	Maintenance Manager	Research and Development Manager	Quality Assurance Manager
LEVEL 4	Production Executive	Production Executive	Production Executive	Tooling Executive	Research and Development Executive*	Quality Assurance Executive
LEVEL 3	Injection Moulding Supervisor	Jig Maker	Mould Maker	Tooling Technician*	Research and Development Officer*	Quality Inspector
LEVEL 2	Senior Injection Moulding Operator	No Level	No Level	Tooling Operator*	No Level	No level
LEVEL 1	Injection Moulding Operator	No Level	No Level	No Level	No Level	No Level

Note: *Critical Job Titles

Table 4.14: Summary of Job Titles

No	Job Area	Level								Total Identified Job Titles	Total Critical Job Titles	Total Job Titles relevant to Industry 4.0
		1	2	3	4	5	6	7	8			
Wooden Furniture Manufacturing												
1	Rough Milling	1	1	1	1	1	NA	NA	NA	5	NA	NA
2	Lamination	1	1	1	1	1	NA	NA	NA	5	NA	NA
3	Final Milling	1	1	1	1	1	NA	NA	NA	5	1	1
4	Assembly	1	1	1	1	1	NA	NA	NA	5	NA	NA
5	Sanding	1	1	1	1	1	NA	NA	NA	5	NA	NA
6	Finishing	NL	1	1	1	1	NA	NA	NA	4	1	NA
7	Product Development	NL	1	1	1	1	NA	NA	NA	4	3	NA
8	Sample Making	NL	1	1	1	1	NA	NA	NA	4	NA	NA
9	Quality Assurance	NL	NL	1	1	1	NA	NA	NA	3	2	NA
10	Production Planning and Control	NL	NL	1	1	1	NA	NA	NA	3	1	1
11	Maintenance	NL	1	1	1	1	NA	NA	NA	4	3	NA
12	Tooling	NL	1	1	1	1	NA	NA	NA	4	3	NA

No	Job Area	Level								Total Identified Job Titles	Total Critical Job Titles	Total Job Titles relevant to Industry 4.0
		1	2	3	4	5	6	7	8			
Upholstery of Furniture												
13	Frame Making	1	1	1	1	1	NA	NA	NA	5	NA	NA
14	Construction & Assembly	1	1	1	1	1	NA	NA	NA	5	NA	NA
15	Upholstering	1	1	1	1	1	NA	NA	NA	5	NA	NA
16	Finishing	NL	1	1	1	1	NA	NA	NA	4	NA	NA
17	Maintenance	NL	NL	1	1	1	NA	NA	NA	3	NA	NA
18	Product Development	NL	1	1	1	1	NA	NA	NA	4	NA	NA
19	Quality Assurance	NL	NL	1	1	1	NA	NA	NA	3	NA	NA
Cane Furniture Manufacturing												
20	Material Preparation	1	1	1	1	1	NA	NA	NA	5	NA	NA
21	Steam Bending	NL	1	1	1	1	NA	NA	NA	4	NA	NA
22	Shaping	NL	1	1	1	1	NA	NA	NA	4	NA	NA
23	Cane weaving	NL	1	1	1	1	NA	NA	NA	4	1	NA
24	Construction & Assembly	NL	1	1	1	1	NA	NA	NA	4	NA	NA
25	Finishing	1	1	1	1	1	NA	NA	NA	5	NA	NA
26	Quality Assurance	NL	NL	1	1	1	NA	NA	NA	3	NA	NA

No	Job Area	Level								Total Identified Job Titles	Total Critical Job Titles	Total Job Titles relevant to Industry 4.0
		1	2	3	4	5	6	7	8			
Metal Furniture Manufacturing												
27	Material Preparation	1	1	1	1	1	NA	NA	NA	5	NA	NA
28	Fabrication	1	1	1	1	1	NA	NA	NA	5	2	NA
29	Bending	NL	1	1	1	1	NA	NA	NA	4	NA	NA
30	CNC Machining	NL	1	1	1	1	NA	NA	NA	4	2	NA
31	Welding	1	1	1	1	1	NA	NA	NA	5	NA	NA
32	Jig Making	NL	1	1	1	1	NA	NA	NA	4	NA	NA
33	Mould Making	NL	1	1	1	1	NA	NA	NA	4	NA	NA
34	Sand Blasting	1	1	1	1	1	NA	NA	NA	5	NA	NA
35	Dipping	1	1	1	1	1	NA	NA	NA	5	NA	NA
36	Spraying	NL	1	1	1	1	NA	NA	NA	4	NA	NA
37	Powder Coating	NL	NL	1	1	1	NA	NA	NA	3	1	NA
38	Assembly	1	1	1	1	1	NA	NA	NA	5	NA	NA
39	Product Development	NL	1	1	1	1	NA	NA	NA	4	NA	NA
40	Production Planning Control	NL	NL	1	1	1	NA	NA	NA	3	NA	NA
41	Quality Assurance	NL	NL	1	1	1	NA	NA	NA	3	NA	NA

No	Job Area	Level								Total Identified Job Titles	Total Critical Job Titles	Total Job Titles relevant to Industry 4.0
		1	2	3	4	5	6	7	8			
42	Maintenance	NL	NL	1	1	1	NA	NA	NA	3	NA	NA
Plastic Furniture Manufacturing												
43	Injection Moulding	1	1	1	1	1	NA	NA	NA	5	NA	NA
44	Jig Making	NL	NL	1	1	1	NA	NA	NA	3	NA	NA
45	Mould Making	NL	NL	1	1	1	NA	NA	NA	3	NA	NA
46	Tooling	NL	1	1	1	1	NA	NA	NA	4	2	NA
47	Research and Development	NL	NA	1	1	1	NA	NA	NA	3	2	NA
48	Quality Assurance	NL	NL	1	1	1	NA	NA	NA	3	NA	NA
Grand Total of Identified Job Titles										191	24	2

NL – No Level

NA – Not Available

4.5 Occupational Responsibility

This section provides the detail occupational responsibilities for each job title identified in the OS. This list will be used later as a reference in developing NOSS for 2 digits MSIC 2008 Division 31: Manufacture of furniture, under 1-digit MSIC 2008 Section C: Manufacturing. The actual tasks for each job identified in this OF may include, but not limited to the occupational responsibilities listed in this section. Details of occupational responsibilities for each job title are shown in Table 4.15 to Table 4.32 respectively.

Division: C31 Manufacture of furniture

Group: 310 Manufacture of furniture

Table 4.15: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.7 (1 of 18)

AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <p>1) Plan, implement and control the furniture production in the rough milling section. 2) Establish, review and adjust the production schedule where needed.</p>	<p><u>Production Manager</u></p> <p>1) Plan, implement and control the furniture production in the lamination section. 2) Establish, review and adjust the production schedule where needed.</p>	<p><u>Production Manager</u></p> <p>1) Plan, implement and control the furniture production in final milling section. 2) Establish, review and adjust the production schedule where needed.</p>

AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)
	<ul style="list-style-type: none"> 3) Determine the human and material resources required for production. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Enforce Standard Operating Procedures (SOP) in the production operations and ensure that SOP are adhered at all times. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement. 	<ul style="list-style-type: none"> 3) Determine the human and material resources required for production. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Enforce Standard Operating Procedures (SOP) in the production operations and ensure that SOP are adhered at all times. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement. 	<ul style="list-style-type: none"> 3) Determine the human and material resources required for production. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Enforce Standard Operating Procedures (SOP) in the production operations and ensure that SOP are adhered at all times. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.

AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)
LEVEL 4	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Execute and monitor the operations in the rough milling section. 2) Monitor rough milling production team in order to achieve production target. 3) Implement the production quality system. 4) Ensure rough milling machineries and equipment are in good conditions. 5) Evaluate and ensure production disciplines are followed. 6) Monitor subordinates to perform the job according to SOP. 7) Educate in quality and safety and handle workers' attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice. 	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Execute and monitor the operation in the lamination section. 2) Monitor lamination team in order to achieve production target. 3) Implement the production quality system. 4) Ensure lamination machineries and equipment are in good conditions. 5) Evaluate and ensure production disciplines are followed. 6) Monitor subordinates to perform the job according to SOP. 7) Educate in quality and safety and handle workers' attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice. 	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Execute and monitor the operations in the final milling section. 2) Monitor final milling production team in order to achieve production target. 3) Implement the production quality system. 4) Ensure final milling machineries and equipment are in good conditions. 5) Evaluate and ensure production disciplines are followed. 6) Monitor subordinates to perform the job according to SOP. 7) Educate in quality and safety and handle workers' attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice.
LEVEL 3	<p><u>Rough Milling Supervisor</u></p> <ol style="list-style-type: none"> 1) Supervise day to day rough milling operation at the rough milling section and ensure it is running according to production target and following Standard Operation Procedures (SOP). 	<p><u>Lamination Supervisor</u></p> <ol style="list-style-type: none"> 1) Supervise day to day lamination operation at the lamination section and ensure it is running according to production target and following Standard Operation Procedures (SOP). 	<p><u>Senior CNC Machinist</u></p> <ol style="list-style-type: none"> 1) Oversee the technical and production aspects of all CNC equipment at the final milling sections. 2) Perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring and work-holding

AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)
	<ul style="list-style-type: none"> 2) Monitor and coordinate all rough milling activities. 3) Ensure all rough milling machineries and equipment are in good conditions. 4) Assist Production Executive in monitoring day to day operation of production. 5) Ensure output according to set target and quality standard. 6) Perform supervision job according to SOP, educate on quality and safety and handle their attendance and affair. 7) Maintain housekeeping and safety of work area. 8) Prepare report on any abnormality occurred. 	<ul style="list-style-type: none"> 2) Monitor and coordinate material preparation, gluing and lamination work activities. 3) Ensure all rough milling machineries and equipment are in good conditions. 4) Assist Production Executive in monitoring day to day operation of production. 5) Ensure output according to set target and quality standard. 6) Perform supervision job according to SOP, educate on quality and safety and handle their attendance and affair. 7) Maintain housekeeping and safety of work area. 8) Prepare report on any abnormality occurred 	<ul style="list-style-type: none"> issues, and material issues to new operators. 3) Perform training to new operators 4) Oversee production and drive improvement to exiting processes 5) Implement new products, tooling, programming and inspection 6) Implement new capital equipment- installation, training, initial start-up, production ramp. 7) Work with vendors on tooling issues. 8) Perform supervision job according to SOP. 9) Educate on quality and safety and handle their attendance and affair. 10) Maintain housekeeping and safety of work area.
LEVEL 2	<p><u>Rough Milling Line Leader</u></p> <ul style="list-style-type: none"> 1) Lead the rough milling section to ensure it is running according to production target and following Standard Operation Procedures (SOP). 2) Check rough milling activities such as cross cutting, ripping, surfacing, 	<p><u>Lamination Line Leader</u></p> <ul style="list-style-type: none"> 1) Lead the lamination section to ensure it is running according to production target and following Standard Operation Procedures (SOP). 	<p><u>CNC Machinist</u></p> <ul style="list-style-type: none"> 1) Prepare and operate CNC machines to perform tasks such as boring, shaping, profiling and etc. 2) Interpret specifications of the task at hand and the desired result by reading blueprints, mechanical drawings etc.

AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)
	moulding and sizing according to requirements. 3) Check all machines and equipment are properly set and in good conditions. 4) Monitor day to day rough milling operation and ensure output according to set target and quality standard. 5) Reject defectives materials. 6) Maintain housekeeping and safety of rough milling work area. 7) Record all work performed in the log book.	2) Check lamination work activities such as gluing, pressing, edge banding and etc. according to requirements. 3) Check all laminating machines and equipment are properly set and in good conditions. 4) Monitor day to day lamination process and ensure output according to set target and quality standard. 5) Reject defectives laminated materials. 6) Maintain housekeeping and safety of lamination work area. 7) Record all work performed in the log book.	3) Translate instructions into computer commands so the machines can perform the correct function. 4) Prepare and load raw materials and parts onto the machines. 5) Prepare a test run to check if the machines produce outputs according to specifications. 6) Set machines to complete full cycles to fabricate large number of parts. 7) Monitor the machine executing the tasks and make any necessary adjustments to produce a better result. 8) Report to superior on production issues.
LEVEL 1	<u>Machine Operator</u> 1) Prepare and sort the material needed such as sawn timber, plywood, fibreboard and particleboard according to requirements. 2) Operate machines to do cross cutting, ripping, surfacing and moulding for solid wood materials. 3) Perform cut to size for panel materials.	<u>Lamination Operator</u> 1) Prepare and sort the material according to requirements. 2) Perform glue spreading according to requirements. 3) Perform pressing of glued components. 4) Produce edging as per requirement. 5) Measure and marks processed material to verify dimensions using hand tools.	<u>Machine Operator</u> 1) Prepare and sort the material and furniture components for final milling process. 2) Operate machines to do boring, tenoning, profiling, edging as per requirement. 3) Inspect, measure and mark material to verify dimensions using hand tools. 4) Stack the processed furniture component according to requirement.

AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)
	4) Measure and mark material to verify dimensions using hand tools. 5) Stack the processed furniture component according to requirement. 6) Perform housekeeping at work area. 7) Follow safety guidelines.	6) Reject defectives laminated materials. 7) Stack laminated timber or furniture component according to requirement. 8) Perform housekeeping at work area. 9) Follow safety guidelines.	5) Perform housekeeping at work area. 6) Follow safety guidelines.

Table 4.16: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.7 (2 of 18)

AREA	Wooden Furniture Manufacturing (Assembly)	Wooden Furniture Manufacturing (Sanding)	Wooden Furniture Manufacturing (Finishing)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the furniture production in the assembly section. 2) Establish, review and adjust the production schedule where needed. 3) Determine the human and material resources required for production. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Enforce Standard Operating Procedures (SOP) in the production operations and ensure that SOP are adhered at all times. 7) Ensure implementation and adherence to health and safety procedures. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the furniture production in the sanding section. 2) Establish, review and adjust the production schedule where needed. 3) Determine the human and material resources required for production. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Enforce Standard Operating Procedures (SOP) in the production operations and ensure that SOP are adhered at all times. 7) Ensure implementation and adherence to health and safety procedures. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the furniture production in the finishing section. 2) Establish, review and adjust the production schedule where needed. 3) Determine the human and material resources required for production. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Enforce Standard Operating Procedures (SOP) in the production operations and ensure that SOP are adhered at all times. 7) Ensure implementation and adherence to health and safety procedures.

AREA	Wooden Furniture Manufacturing (Assembly)	Wooden Furniture Manufacturing (Sanding)	Wooden Furniture Manufacturing (Finishing)
	8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.
LEVEL 4	<u>Production Executive</u> 1) Execute and monitor operation in the furniture assembly line. 2) Monitor the assembly operation team in order to achieve production target. 3) Implement the furniture assembly quality system. 4) Ensure furniture assembly equipment, jigs and fixtures are in good conditions. 5) Evaluate and ensure production disciplines are followed. 6) Monitor subordinates to perform the job according to SOP. 7) Educate in quality and safety and handle workers attendance and affairs.	<u>Finishing Line Executive</u> 1) Plan, execute and monitor furniture sanding line activities. 2) Monitor day to day finishing operations with optimum material usage and ensure output according to set target and finishing quality standard. 3) Set and implement the finishing quality system. 4) Ensure finishing equipment and tools are in good conditions. 5) Ensure correct PPE are used and ensure safety procedures are followed. 6) Monitor subordinates to perform the job according to SOP.	<u>Finishing Line Executive</u> 1) Plan, execute and monitor furniture finishing line activities. 2) Monitor day to day finishing operations with optimum material usage and ensure output according to set target and finishing quality standard. 3) Set and implement the finishing quality system. 4) Ensure finishing equipment and tools are in good conditions. 5) Ensure correct PPE are used and ensure safety procedures are followed. 6) Monitor subordinates to perform the job according to SOP.

AREA	Wooden Furniture Manufacturing (Assembly)	Wooden Furniture Manufacturing (Sanding)	Wooden Furniture Manufacturing (Finishing)
	8) Ensure that all tasks performed are in accordance with safe working practice.	7) Educate quality and safety and handle their attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice.	7) Educate quality and safety and handle their attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice.
LEVEL 3	<p><u>Assembly Supervisor</u></p> <p>1) Supervise day to day operation at assembly section and to ensure it is running according to production target and following Standard Operation Procedures (SOP).</p> <p>2) Monitor and coordinate all furniture assembling activities.</p> <p>3) Ensure all assembly equipment and materials are in good conditions.</p> <p>4) Assist Production Executive in monitoring day to day operation of production.</p> <p>5) Ensure output according to set target and quality standard.</p> <p>6) Perform supervision job according to SOP.</p> <p>7) Brief operators on quality and safety and handle their attendance and affair.</p> <p>8) Maintain housekeeping and safety of work area.</p>	<p><u>Sanding Supervisor</u></p> <p>1) Inspect all sanding machines and sanding materials are in good working conditions.</p> <p>2) Monitor day to day sanding activities to ensure output according to set quality standard or requirement;</p> <p>3) Performs supervision and controlling job according to SOP.</p> <p>4) Brief operators on quality and safety standards and handle their attendance and affair.</p> <p>5) Maintain housekeeping and safety of work area.</p>	<p><u>Senior Finishing Sprayer</u></p> <p>1) Perform finishing operation by using finishing technology, finishing systems and chemicals preparation.</p> <p>2) Inspect all finishing equipment such as spray gun and spray booth are in good working conditions.</p> <p>3) Check finishing chemicals being prepared according to mixing specification.</p> <p>4) Perform spraying as per specified requirement.</p> <p>5) Monitor day to day finishing process to ensure output is according to set finishing quality standard or requirement;</p> <p>6) Perform supervision and controlling job according to SOP.</p> <p>7) Brief operators on quality and safety standards.</p>

AREA	Wooden Furniture Manufacturing (Assembly)	Wooden Furniture Manufacturing (Sanding)	Wooden Furniture Manufacturing (Finishing)
	9) Prepare report on any abnormality occurred.		8) Maintain housekeeping and safety of work area.
LEVEL 2	<p><u>Assembly Line Leader</u></p> <ol style="list-style-type: none"> 1) Lead the assembly processes in order and ensure it is running according to production target and following SOP. 2) Check all furniture parts and components are glued or joined properly and accepted for assembly. 3) Check all assembly jigs, tools and equipment are properly set and in good conditions. 4) Monitor day to day assembly operation and ensure output according to set target and quality standard. 5) Maintain housekeeping and safety of work area. 6) Record all work performed in the log book. 	<p><u>Sanding Line leader</u></p> <ol style="list-style-type: none"> 1) Lead the sanding section and ensure it is running according to production target and following SOP. 2) Set sanding machines such as wide belt sander, drum sander, orbital sander, profile sander to do sanding of furniture components prior to finishing. 3) Check all machines and equipment are properly set and in good working conditions. 4) Check hand sanding activities and machine sanding process. 5) Monitor day to day sanding operation and ensure output is according to set target and quality standard. 6) Reject defectives materials. 7) Maintain housekeeping and safety of rough milling work area. 8) Record all work performed in the log book. 	<p><u>Finishing Sprayer</u></p> <ol style="list-style-type: none"> 1) Interpret finishing work requirement. 2) Select finishing material and equipment. 3) Check the material or products to be sprayed are properly sanded according to requirement. 4) Spray furniture products, parts or components according to requirements. 5) Rework or reject defective products. 6) Clean the finishing equipment after use. 7) Perform housekeeping of work area. 8) Follow safety work procedure.

AREA	Wooden Furniture Manufacturing (Assembly)	Wooden Furniture Manufacturing (Sanding)	Wooden Furniture Manufacturing (Finishing)
LEVEL 1	<p><u>Assembly Operator</u></p> <ol style="list-style-type: none"> 1) Assemble components into final furniture parts or products prior to packing according to instruction. 2) Check furniture components, apply adhesive at joints, install hardware and fittings as when required according to assembly instruction. 3) Wrap the finished components with wrapping materials prior to packing into carton boxes to prevent from scratches according to requirements. 4) Operate the assembly and packing equipment in order to perform the activities smoothly. 5) Perform housekeeping at work area. 6) Follow safety requirements. 	<p><u>Sanding Operator</u></p> <ol style="list-style-type: none"> 1) Operate sanding machines such as wide belt sander, drum sander, orbital sander, and profile sander to do sanding of furniture components prior to finishing. 2) Perform hand sanding as per requirement. 3) Ensure work based on job order and instructions by superior. 4) Check the surface after sanding and marks defective surface. 5) Perform housekeeping at work area. 6) Follow safety guidelines. 7) Report any abnormality to superior. 	<p>No Level</p>

Table 4.17: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.8 (3 of 18)

AREA	Wooden Furniture Manufacturing (Product Development)	Wooden Furniture Manufacturing (Sample Making)	Wooden Furniture Manufacturing (Quality Assurance)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Product Development Manager</u></p> <ol style="list-style-type: none"> 1) Lead market research to identify new furniture product requirements and market opportunities. 2) Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement. 3) Investigate with buyers on any product issues, complaints, withdrawals, recalls and returns. 4) Carry out an initial assessment of products to ensure safety, legality and quality. 5) Organise product engineering discussions with suppliers, including 	<p><u>Product Development Manager</u></p> <ol style="list-style-type: none"> 1) Lead market research to identify new furniture product requirements and market opportunities. 2) Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement. 3) Investigate with buyers on any product issues, complaints, withdrawals, recalls and returns. 4) Carry out an initial assessment of products to ensure safety, legality and quality. 5) Organise product engineering discussions with suppliers, including use of preferred component suppliers and management. 	<p><u>Quality Assurance Manager</u></p> <ol style="list-style-type: none"> 1) Formulate and set quality policies according to furniture quality standards. 2) Ensure that furniture products meet standards set by both company and regulatory authorities. 3) Develop and review quality and safety policies and manage audits by third-party inspection on manufacturing facilities for compliance with standards. 4) Determine methods to resolve any quality issues that arise. 5) Review customer feedback and respond to any quality complaints. 6) Develop and manage new product testing requirements including new material application test.

AREA	Wooden Furniture Manufacturing (Product Development)	Wooden Furniture Manufacturing (Sample Making)	Wooden Furniture Manufacturing (Quality Assurance)
	<p>use of preferred component suppliers and management.</p> <p>6) Pre-screen all development samples, ensuring company requirements are met.</p> <p>7) Evaluate sample and provide any technical comments and suggestion for product improvement.</p> <p>8) Provide comprehensive product information for all aspects of new product launches.</p> <p>9) Communicate features and benefits in support of go to market strategy.</p> <p>10) Support marketing promotion and provide training on new products features and advantages.</p>	<p>6) Pre-screen all development samples, ensuring company requirements are met.</p> <p>7) Evaluate sample and provide any technical comments and suggestion for product improvement.</p> <p>8) Provide comprehensive product information for all aspects of new product launches.</p> <p>9) Communicate features and benefits in support of go to market strategy.</p> <p>10) Support marketing promotion and provide training on new products features and advantages.</p>	<p>7) Manage the disposal of non-conforming material.</p> <p>8) Monitor the verification and follow-up of quality issues</p> <p>9) Inspect facilities for compliance with standards, determining methods to resolve any issues that arise.</p> <p>10) Ensure Quality Awareness training is conducted for across the function and advice top management on quality improvements matters.</p>
LEVEL 4	<p><u>Product Development Executive</u></p> <p>1) Update furniture current market trend and needs.</p> <p>2) Plan, execute and monitor furniture product development activities.</p>	<p><u>Product Development Executive</u></p> <p>1) Update furniture current market trend and needs.</p> <p>2) Plan, execute and monitor furniture product development activities.</p>	<p><u>Quality Assurance Executive</u></p> <p>1) Implement quality policies according to furniture quality standards.</p> <p>2) Verify furniture products meet standards set by both company and regulatory authorities.</p>

AREA	Wooden Furniture Manufacturing (Product Development)	Wooden Furniture Manufacturing (Sample Making)	Wooden Furniture Manufacturing (Quality Assurance)
	<ul style="list-style-type: none"> 3) Prepare target in new product development with optimum material usage. 4) Prepare bill of material and costing on new products. 5) Set quality level requirements for a new product. 6) Develop company's product catalogue. 7) Monitor the entire product development activities according to SOP. 8) Ensure furniture designing and sample making team to achieve target according to timeframe requirement. 	<ul style="list-style-type: none"> 3) Prepare target in new product development with optimum material usage. 4) Prepare bill of material and costing on new products. 5) Set quality level requirements for a new product. 6) Develop company's product catalogue. 7) Monitor the entire product development activities according to SOP. 8) Ensure furniture designing and sample making team to achieve target according to timeframe requirement. 	<ul style="list-style-type: none"> 3) Propose methods to resolve any quality issues that arise. 4) Obtain and assess customer feedback to any quality complaints. 5) Follow-up and verify on quality issues. 6) Perform all incoming material and component inspection activities. 7) Coordinate the disposal of non-conforming material. 8) Inspect facilities for compliance with standards, determining methods to resolve any issues that arise. 9) Conduct Quality Awareness training production staff. 10) Propose quality improvements matters.
LEVEL 3	<p><u>Product Designer</u></p> <ul style="list-style-type: none"> 1) Determine current design requirement and prepare itemized production requirements to produce furniture item. 2) Prepare blueprints containing manufacturing specifications, such as dimensions, kind of wood, and 	<p><u>Senior Sample Maker</u></p> <ul style="list-style-type: none"> 1) Refer work order information as regards their specification and preferences for a project. 2) Interpreting furniture specification and drawing details. 3) Recommend on appropriate furniture designs and styles. 	<p><u>Quality Inspector</u></p> <ul style="list-style-type: none"> 1) Inspect raw material such as wood, plywood, fibreboard, particleboard to ensure quality consistency and according to specified requirements. 2) Perform in process quality inspection at the material rough milling, lamination, final

AREA	Wooden Furniture Manufacturing (Product Development)	Wooden Furniture Manufacturing (Sample Making)	Wooden Furniture Manufacturing (Quality Assurance)
	<p>upholstery fabrics to be used in manufacturing furniture.</p> <p>3) Design and prepare detailed drawings of jigs, fixtures, forms, or tools required to be used in production.</p> <p>4) Plan modifications for completed furniture to conform to changes in design trends and increase customer acceptance.</p> <p>5) Build construction of models or prototypes.</p> <p>6) Identify potential operational issues and redesign products to improve functionality.</p> <p>7) Ensure final designs comply with regulations and quality standards</p> <p>8) Create manuals that describe existing products' operation, features and maintenance.</p>	<p>4) Provide cost estimation of materials required for the construction of furniture samples.</p> <p>5) Select suitable wood type, as well as other materials needed for sample construction work.</p> <p>6) Prepare jigs and fixtures for sample making.</p> <p>7) Create custom woodworks by crafting or carving of furniture components when required.</p> <p>8) Take measurements to establish furniture dimensions during the design or construction of furniture sample.</p> <p>9) Create custom woodworks by crafting or carving of furniture components when required.</p> <p>10) Apply finishing as per requirements.</p> <p>11) Install wood add-ons such as hinges, handles, and locks onto finished products.</p>	<p>milling and other processing and machining operations.</p> <p>3) Notify the operators when there are machining or processing defects and propose rectification work.</p> <p>4) Inspect the assembled furniture to ensure good joint strength and good construction.</p> <p>5) Perform quality inspection at sanding and finishing section.</p> <p>6) Perform finish product quality inspection as per quality acceptance guidelines prior to storage or shipment.</p> <p>7) Record all production and manufacturing quality issues.</p> <p>8) Assess quality performance and report to management.</p>

AREA	Wooden Furniture Manufacturing (Product Development)	Wooden Furniture Manufacturing (Sample Making)	Wooden Furniture Manufacturing (Quality Assurance)
LEVEL 2	<p><u>Draughtsman</u></p> <ol style="list-style-type: none"> 1) Liaise with designer to gather product designs and structural requirements. 2) Create technical drawings based on given furniture product specifications and calculations. 3) Prepare detailed drawings of jigs and fixtures required to be used in production. 4) Prepare Bill of Material (BOM) of furniture items. 5) Calculate dimensions, volumes and requirements in materials. 6) Describe production methods step-by-step. 7) Create detailed designs with computer-aided design (CAD) software. 8) Design diagrams, maps and layouts to illustrate workflow. 	<p><u>Sample Maker</u></p> <ol style="list-style-type: none"> 1) Perform carpentry works for making furniture sample. 2) Take measurements to mark furniture dimensions or layout using tools such as rules, tapes, and pencils. 3) Select suitable materials needed for the crafting of furniture. 4) Produce wooden components by cutting and shaping raw materials with the aid of hand or power saws, and planes. 5) Assemble and join wood parts to form structures; they achieve this by using implements such as hammers, nails, and glue. 6) Create precise holes on wood pieces to allow space for the lodging of screws and bolts. 7) Carry out-the installation of wood add-ons such as hinges, drawer handles, and door locks. 	No Level
LEVEL 1	No Level	No Level	No Level

Table 4.18: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.8 (4 of 18)

AREA	Wooden Furniture Manufacturing (Production Planning and Control)	Wooden Furniture Manufacturing (Maintenance)	Wooden Furniture Manufacturing (Tooling)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Planning and Control Manager</u></p> <ol style="list-style-type: none"> 1) Plan equipment, material and manpower requirements to meet production schedule. 2) Plan and prioritise operations to ensure maximum production output. 3) Monitor job schedules to ensure they will finish on time and within budget. 4) Identify new suppliers and manage existing suppliers to meet production needs. 5) Monitor inventory status and generate inventory reports to Production Manager. 6) Analyse current production capacity and plan on improvement on productivity and efficiency. 	<p><u>Maintenance Manager</u></p> <ol style="list-style-type: none"> 1) Develop maintenance procedure and ensure implementation. 2) Carry out inspections of the facilities to identify and resolve issues. 3) Check electrical and hydraulic systems of buildings to ensure functionality. 4) Plan and oversee all repair and installation activities. 5) Allocate workload and supervise upkeep staff (custodians, janitors etc.) Monitor equipment inventory and place orders when necessary. 6) Monitor expenses and control the budget for maintenance. 7) Manage relationships with contractors and service providers. 	<p><u>Maintenance Manager</u></p> <ol style="list-style-type: none"> 1) Develop maintenance procedure and ensure implementation. 2) Carry out inspections of the facilities to identify and resolve issues. 3) Check electrical and hydraulic systems of buildings to ensure functionality. 4) Plan and oversee all repair and installation activities. 5) Allocate workload and supervise upkeep staff (custodians, janitors etc.) Monitor equipment inventory and place orders when necessary. 6) Monitor expenses and control the budget for maintenance. 7) Manage relationships with contractors and service providers.

AREA	Wooden Furniture Manufacturing (Production Planning and Control)	Wooden Furniture Manufacturing (Maintenance)	Wooden Furniture Manufacturing (Tooling)
	7) Assist Sales unit in coordinating and planning customer orders and deliveries.	8) Keep maintenance logs and report on daily activities. 9) Ensure health and safety policies are complied with.	8) Keep maintenance logs and report on daily activities 9) Ensure health and safety policies are complied with.
LEVEL 4	<p><u>Production Planning and Control Executive.</u></p> <ol style="list-style-type: none"> 1) Assess current production capacity and propose improvement on productivity and efficiency. 2) Determine manpower, equipment and raw materials needed to cover furniture production demand. 3) Plan and prioritise operations to ensure maximum production output. 4) Prepare production planning schedule. 5) Schedule shift according to production needs. 6) Address issues when they arise aiming for minimum disruption. 7) Collaborate with quality control, warehouse and other staff. 	<p><u>Maintenance Executive</u></p> <ol style="list-style-type: none"> 1) Survey buildings and mechanical systems to ensure they are consistent with health and safety standards. 2) Monitor maintenance of electrical systems. 3) Monitor setup of ventilation, refrigeration and other systems and repair work. 4) Monitor heating and plumbing systems to ensure functionality. 5) Monitor alarm systems (fire, protection) and schedule repairs when needed. 6) Ensure pest control activities such as spraying insecticide are carried out regularly. 7) Develop general upkeep procedures and other maintenance tasks as assigned (painting, carpentry etc.). 	<p><u>Tooling Executive.</u></p> <ol style="list-style-type: none"> 1) Interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing and communicating tooling work requirements. 2) Support production activities at all times by ensuring minimum response times to tools and machine breakdowns. 3) Ensure all maintenance and repair works done comply with local regulatory, corporate safety and industrial standards. 4) Keep track of spare part and inventory usage to maintain spare part/inventory control.

AREA	Wooden Furniture Manufacturing (Production Planning and Control)	Wooden Furniture Manufacturing (Maintenance)	Wooden Furniture Manufacturing (Tooling)
	8) Obtain output information (number of finished products, percentage of defectives. 9) Evaluate production status and performance report. 10) Liaise with production and material procurement management team.	8) Assist in maintenance budget preparation and ensure it is followed.	5) Assist Maintenance Manager in carrying out engineering evaluations/experiments/troubleshooting. 6) Participate and contribute actively in continuous improvement activities. 7) Respond to emergency calls for any troubleshooting required at site.
LEVEL 3	<u>Production Planning and Control Officer</u> 1) Check current machine utilisation and capacity. 2) Assess current production and machine capacity. 3) Determine manpower, equipment and raw materials needed to cover furniture production demand. 4) Plan and prioritise operations to ensure maximum production output. 5) Prepare production planning schedule. 6) Schedule shift according to production needs. 7) Monitor jobs to ensure they will finish on time and within schedule.	<u>Maintenance Technician</u> 1) Perform regular inspection on building maintenance. 2) Repair mechanical systems to ensure they are consistent with health and safety standards. 3) Perform maintenance of electrical systems such as replace light bulbs and sockets, clean and repair circuit breaker panels. 4) Assist in the setup of ventilation, refrigeration and other systems and conduct repairs when necessary. 5) Maintain heating and plumbing systems to ensure functionality. 6) Inspect alarm systems (fire, protection) and schedule repairs when needed.	<u>Tooling Technician</u> 1) Use processes such as cutting, grinding, spotting, painting, hand finish, shaping, bending, drilling, reaming, tapping, wiring, plumbing, lay-up, minor welding, inspection, set-up, operate all types of fabrication and measurement equipment and machine tools required to fabricate tools. 2) Use and/or interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing and communicating work requirements.

AREA	Wooden Furniture Manufacturing (Production Planning and Control)	Wooden Furniture Manufacturing (Maintenance)	Wooden Furniture Manufacturing (Tooling)
	8) Propose on improvement on productivity and efficiency. 9) Address issues when they arise aiming for minimum disruption. 10) Collaborate with quality control, warehouse and other staff.	7) Perform manual repairs when necessary such as fix locks and replace windows and etc. 8) Undertake activities of pest control such as spraying insecticide.	3) Supervise and coordinate with contractors and vendors on works for maintenance and repair related to tools and equipment. 4) Provide simple report on breakdown history and ensure follow up action to prevent recurrence of tool breakdowns. 5) Support the Tooling Executive in the identification and procurement of parts required for maintenance and repair. 6) Keep track of spare part and inventory usage to maintain spare part/inventory control.
LEVEL 2	No Level	<u>Machinist</u> 1) Inspect machine operation conditions. 2) Oversee the technical and production aspects of all CNC equipment. 3) Perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring & work-holding issues, and material issues to new operators. 4) Work with tooling technician on tooling issues.	<u>Grinding Operator</u> 1) Operate tool grinding equipment. 2) Use processes such as cutting, grinding, spotting, painting, hand finish, shaping, bending, drilling, reaming, tapping, wiring, plumbing, lay-up, minor welding, inspection, and set-up. 3) Operate all types of fabrication and measurement equipment and machine tools required to fabricate tools.

AREA	Wooden Furniture Manufacturing (Production Planning and Control)	Wooden Furniture Manufacturing (Maintenance)	Wooden Furniture Manufacturing (Tooling)
		5) Report to higher management on production issues. 6) Perform housekeeping of work area. 7) Follow safety guidelines.	4) Use and/or interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing work requirements. 5) Perform housekeeping of work area. 6) Follow safety guidelines.
LEVEL 1	No Level	No Level	No Level

Table 4.19: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.9 (5 of 18)

AREA	Upholstery of Furniture (Frame Making)	Upholstery of Furniture (Construction & Assembly)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Not Available
LEVEL 6	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the upholstery of furniture production in the frame making line. 2) Establish, review and adjust the production schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the upholstery of furniture production in construction and assembly line. 2) Establish, review and adjust the production schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.

AREA	Upholstery of Furniture (Frame Making)	Upholstery of Furniture (Construction & Assembly)
LEVEL 4	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the entire upholstery material preparation and frame making production team in order to achieve production target. 2) Execute and monitor upholstery of furniture production activities. 3) Implement the production quality system. Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handling workers attendance and affairs. 7) Ensure that all tasks performed are in accordance with safe working practice. 	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the entire upholstery production construction and assembly team in order to achieve production target. 2) Execute and monitor upholstery of furniture production activities. 3) Implement the production quality system. Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handling workers attendance and affairs. 7) Ensure that all tasks performed are in accordance with safe working practice.
LEVEL 3	<p><u>Senior Frame Maker</u></p> <ol style="list-style-type: none"> 1) Take measurements to mark furniture frame dimensions or layout using tools such as rules, tapes, and pencils. 2) Select suitable materials needed for the frame making. 3) Produce frame components by cutting and shaping raw materials with the aid of hand or power saws, and planes. 4) Assemble and join wood parts to form structures; they achieve this by using implements such as hammers, nails and glue. 5) Create precise holes on wood pieces to allow space for the lodging of screws and bolts. 	<p><u>Senior Assembler</u></p> <ol style="list-style-type: none"> 1) Check all furniture parts and components are glued or joined properly and accepted for assembly. 2) Check all assembly jigs, tools and equipment are properly set and in good conditions. 3) Ensure correct padding is applied to furniture frame as per requirement. 4) Ensure spring and webbing is installed to the frame as per requirement. 5) Check furniture components, to ensure apply adhesive is applied at joints.

AREA	Upholstery of Furniture (Frame Making)	Upholstery of Furniture (Construction & Assembly)
	<ul style="list-style-type: none"> 6) Perform building of frame making of upholstered furniture such as wooden chairs, sofas and sofas bed. 7) Carry out smoothening of surfaces, application of varnishing/staining materials and various other activities to ensure an even surface and good frame construction. 	<ul style="list-style-type: none"> 6) Install hardware and fittings as when required according to assembly instruction. 7) Ensure frame is properly constructed and assembled prior to upholstering process.
LEVEL 2	<p><u>Frame Maker</u></p> <ul style="list-style-type: none"> 1) Take measurements to mark furniture frame dimensions or layout using tools such as rules, tapes, and pencils. 2) Select suitable materials needed for the frame making. 3) Produce frame components by cutting and shaping raw materials with the aid of hand or power saws, and planes. 4) Assemble and join wood parts to form structures; they achieve this by using implements such as hammers, nails, and glue. 5) Create precise holes on wood pieces to allow space for the lodging of screws and bolts. 6) Perform building of frame making of upholstered furniture such as wooden chairs, sofas and sofas bed. 7) Carry out smoothening of surfaces, application of varnishing/staining materials and various other activities to ensure an even surface and good frame construction. 	<p><u>Assembler</u></p> <ul style="list-style-type: none"> 1) Apply glue to frame joints. 2) Check all furniture parts and components are glued or joined properly and accepted for assembly. 3) Check all assembly jigs, tools and equipment are properly set and in good conditions before use. 4) Assemble padding material to the frame according to work instruction. 5) Install spring and webbing to the frame as per requirement. 6) Install hardware and fittings as when required according to assembly instruction. 7) Check that assembled components are properly secured. 8) Assemble components into final furniture parts or products prior to upholstering process.

AREA	Upholstery of Furniture (Frame Making)	Upholstery of Furniture (Construction & Assembly)
LEVEL 1	<p><u>Material Preparation Operator</u></p> <ol style="list-style-type: none"> 1) Prepare and sort the material needed such as wood, plywood and metal according to frame making requirements. 2) Operate machines to do cross cutting, ripping and sizing. 3) Measure and marks material to verify dimensions using hand tools. 4) Stack the processed furniture component according to requirement. 5) Perform housekeeping at work area. 6) Follow safety guidelines. 	<p><u>Material Preparation Operator</u></p> <ol style="list-style-type: none"> 1) Prepare and sort foam padding as per requirement. 2) Use proper tools in material preparations. 3) Prepare spring and webbing materials according to construction and assembly requirements. 4) Check the quality and conditions of material. 5) Perform housekeeping at work area. 6) Follow safety guidelines.

Table 4.20: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.9 (6 of 18)

AREA	Upholstery of Furniture (Upholstering)	Upholstery of Furniture (Finishing)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Not Available
LEVEL 6	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the upholstery of furniture production schedule. 2) Establish, review and adjust the production schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the finishing for upholstery of furniture production schedule. 2) Establish, review and adjust the production schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.

AREA	Upholstery of Furniture (Upholstering)	Upholstery of Furniture (Finishing)
LEVEL 4	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the upholstery material preparation and upholstering team in order to achieve production target. 2) Execute and monitor upholstery of furniture production activities. 3) Implement the production quality system. 4) Confirm furniture machineries and equipment are in good conditions. 5) Evaluate and ensure production disciplines are followed. 6) Manage subordinates to perform the job according to SOP. 7) Educate in quality and safety and handle workers' attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice. 	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the finishing production team in order to achieve production target. 2) Execute and monitor upholstery of furniture production activities. 3) Implement the production quality system. 4) Confirm furniture machineries and equipment are in good conditions. 5) Evaluate and ensure production disciplines are followed. 6) Manage subordinates to perform the job according to SOP. 7) Educate in quality and safety and handle workers' attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice.
LEVEL 3	<p><u>Senior Upholsterer</u></p> <ol style="list-style-type: none"> 1) Design upholstery cover patterns and cutting plans based on sketches, customer descriptions or blueprints. 2) Discuss upholstery fabrics, colours, and styles with customers, and provide cost estimation. 3) Draw cutting lines on material following patterns, templates, sketches, or blueprints. 4) Examine furniture frames, upholstery, springs, and webbing to locate defects. 	<p><u>Senior Finishing Sprayer</u></p> <ol style="list-style-type: none"> 1) Check all unwanted spraying furniture parts and components are covered properly prior to finishing. glued or joined properly and accepted for assembly. 2) Inspect all finishing equipment such as spray gun and spray booth are in good working conditions. 3) Check finishing material being prepared according to mixing specification. 4) Performs finishing activities by using finishing technology, finishing systems.

AREA	Upholstery of Furniture (Upholstering)	Upholstery of Furniture (Finishing)
	<ul style="list-style-type: none"> 5) Fit, install, and secure material on frames, using hand tools, power tools, glue, cement, and/or staples. 6) Interweave and fasten strips of webbing to the backs and undersides of furniture, using small hand tools and fasteners. 7) Create custom upholstered furniture, using hand tools and knowledge of fabrics and upholstery methods. 8) Operate sewing machines or sew upholstery by hand to seam cushions and join various sections of covering material. 9) Read work orders, and apply knowledge and experience with materials in order to determine types and amounts of materials required to cover workpieces. 	<ul style="list-style-type: none"> 5) Monitor day to day finishing process to ensure output according to set finishing quality standard or requirement. 6) Performs supervision and controlling job according to Standard Operation Procedure (SOP), educate on quality and safety standards. 7) Maintain housekeeping and safety of work area.
LEVEL 2	<p><u>Upholsterer</u></p> <ul style="list-style-type: none"> 1) Attach fasteners, grommets, buttons, buckles, ornamental trim, and other accessories to covers or frames, using hand tools. 2) Draw cutting lines on material following patterns, templates, sketches, or blueprints, using chalk, pencils, paint, or other methods. 3) Examine furniture frames, upholstery, springs, and webbing to locate defects. 4) Fit, install, and secure material on frames, using hand tools, power tools, glue, cement, and/or staples. 5) Interweave and fasten strips of webbing to the backs and undersides of furniture, using small hand tools and fasteners. 	<p><u>Finishing Sprayer</u></p> <ul style="list-style-type: none"> 1) Interpret finishing work requirement. 2) Select finishing material and equipment. 3) Check the material or products to be sprayed are properly sanded according to requirement. 4) Spray furniture products, parts or components according to requirements. 5) Rework or reject defective products. 6) Clean the finishing equipment after used. 7) Perform housekeeping of work area. 8) Follow safety work procedure.

AREA	Upholstery of Furniture (Upholstering)	Upholstery of Furniture (Finishing)
	<ul style="list-style-type: none"> 6) Make custom upholstered furniture, using hand tools, fabrics and upholstery methods. 7) Measure and cut new covering materials, using patterns and measuring and cutting instruments, following sketches and design specifications. 8) Operate sewing machines or sew upholstery by hand to seam cushions and join various sections of covering material. 	
LEVEL 1	<p><u>Material Preparation Operator</u></p> <ul style="list-style-type: none"> 1) Prepare and sort upholstery materials such as fabric, PVC and leather as per requirement. 2) Use proper tools in material preparations. 3) Cut the materials according to requirement. 4) Check the quality and conditions of material. 5) Perform housekeeping at work area. 6) Follow safety guidelines. 	No Level

Table 4.21: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.9 (7 of 18)

AREA	Upholstery of Furniture (Maintenance)	Upholstery of Furniture (Product Development)	Upholstery of Furniture (Quality Assurance)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Maintenance Manager</u></p> <ol style="list-style-type: none"> 1) Develop maintenance procedure and ensure implementation. 2) Carry out inspections of the facilities to identify and resolve issues. 3) Check electrical and hydraulic systems of buildings to ensure functionality. 4) Plan and oversee all repair and installation activities. 5) Allocate workload and supervise upkeep staff (custodians, janitors etc.) Monitor equipment inventory and place orders when necessary. 6) Monitor expenses and control the budget for maintenance. 7) Manage relationships with contractors and service providers. 	<p><u>Product Development Manager</u></p> <ol style="list-style-type: none"> 1) Lead market research to identify new upholstery furniture product and market opportunities. 2) Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement. 3) Investigate with buyers on any product issues, complaints, withdrawals, recalls, and returns. 4) Carry out an initial assessment of products to ensure safety, legality and quality. 5) Drive product engineering discussions with suppliers, including use of preferred component suppliers and management. 	<p><u>Quality Assurance Manager</u></p> <ol style="list-style-type: none"> 1) Formulate and set quality policies according to upholstery furniture quality standards. 2) Ensure that furniture products meet standards set by both company and regulatory authorities. 3) Develop and review quality and safety policies and manage audits by third-party inspection on manufacturing facilities for compliance with standards. 4) Determine methods to resolve any quality issues that arise. 5) Review customer feedback and respond to any quality complaints. 6) Develop and manage new product testing requirements including new material application test.

AREA	Upholstery of Furniture (Maintenance)	Upholstery of Furniture (Product Development)	Upholstery of Furniture (Quality Assurance)
	<ul style="list-style-type: none"> 8) Keep maintenance logs and report on daily activities. 9) Ensure health and safety policies are complied with. 	<ul style="list-style-type: none"> 6) Pre-screen all development samples, ensuring company requirements are met. 7) Provide any technical comments and suggestion for product improvement. 8) Provide comprehensive product information for all aspects of new product launches. 9) Communicate features and benefits in support of go to market strategy 10) Develop competitive comparisons in support of marketing and training initiatives. 	<ul style="list-style-type: none"> 7) Manage the disposal of non-conforming material. 8) Monitor the verification and follow-up of quality issues. 9) Inspect facilities for compliance with standards, determining methods to resolve any issues that arise. 10) Ensure Quality Awareness training is conducted for across the function and advice top management on quality improvements matters.
LEVEL 4	<p><u>Maintenance Executive</u></p> <ul style="list-style-type: none"> 1) Survey buildings and mechanical systems to ensure they are consistent with health and safety standards. 2) Monitor maintenance of electrical systems. 3) Monitor setup of ventilation, refrigeration and other systems and repair work. 4) Monitor heating and plumbing systems to ensure functionality. 	<p><u>Product Development Executive</u></p> <ul style="list-style-type: none"> 1) Update upholstery furniture current market trend and needs. 2) Plan, execute and monitor furniture product development activities. 3) Prepare target in new product development with optimum material usage. 4) Prepare bill of material and costing on new products. 	<p><u>Quality Assurance Executive</u></p> <ul style="list-style-type: none"> 1) Implement quality policies according to upholstery furniture quality standards. 2) Verify upholstery furniture products meet standards set by both company and regulatory authorities. 3) Propose methods to resolve any quality issues that arise. 4) Obtain and assess customer feedback to any quality complaints. 5) Follow-up and verify on quality issues.

AREA	Upholstery of Furniture (Maintenance)	Upholstery of Furniture (Product Development)	Upholstery of Furniture (Quality Assurance)
	<ul style="list-style-type: none"> 5) Monitor alarm systems (fire, protection) and schedule repairs when needed. 6) Ensure pest control activities such as spraying insecticide carried out regularly. 7) Develop general upkeep procedures (e.g. landscaping) and other tasks as assigned (painting, carpentry and etc.). 8) Assist in maintenance budget preparation and ensure it is followed. 	<ul style="list-style-type: none"> 5) Set quality level requirements for a new product. 6) Develop company's product catalogue. 7) Monitor the entire product development activities according to SOP. 8) Ensure furniture designing team to achieve target according to timeframe requirement. 	<ul style="list-style-type: none"> 6) Perform all incoming material and component inspection activities. 7) Coordinate the disposal of non-conforming material. 8) Inspect facilities for compliance with standards, determining methods to resolve any issues that arise. 9) Conduct Quality Awareness training production staff. 10) Propose quality improvements matters.
LEVEL 3	<p><u>Maintenance Technician</u></p> <ul style="list-style-type: none"> 1) Perform regular inspection on building maintenance. 2) Repair mechanical systems to ensure they are consistent with health and safety standards. 3) Perform maintenance of electrical systems (replace light bulbs and sockets, clean and repair circuit breaker panels and etc.). 4) Assist in the setup of ventilation, refrigeration and other systems and conduct repairs when necessary. 	<p><u>Product Designer</u></p> <ul style="list-style-type: none"> 1) Determine current design requirement and prepare itemized production requirements to produce furniture item. 2) Prepare or direct preparation of blueprints containing manufacturing specifications, such as dimensions, kind of wood, and upholstery fabrics to be used in manufacturing furniture. 3) Design and prepare detailed drawings of jigs, fixtures, forms, or tools required to be used in production. 	<p><u>Quality Inspector</u></p> <ul style="list-style-type: none"> 1) Perform quality inspection on raw materials and upholstery materials. 2) Inspect the framing and assembly assembled furniture to ensure good joint strength and good construction. 3) Perform quality inspection at finishing and upholstery section. 4) Perform finished product quality inspection as per quality acceptance guidelines prior to storage or shipment. 5) Record all production and manufacturing quality issues.

AREA	Upholstery of Furniture (Maintenance)	Upholstery of Furniture (Product Development)	Upholstery of Furniture (Quality Assurance)
	5) Maintain heating and plumbing systems to ensure functionality. 6) Inspect alarm systems (fire, protection) and schedule repairs when needed. 7) Perform manual repairs when necessary (fix locks, replace windows and etc.). 8) Undertake activities of pest control such as spraying insecticide.	4) Plan modifications for completed furniture to conform to changes in design trends and increase customer acceptance. 5) Build construction of models or prototypes. 6) Identify potential operational issues and redesign products to improve functionality 7) Ensure final designs comply with regulations and quality standards.	6) Assess quality performance and report to management.
LEVEL 2	No Level	<u>Draughtsman</u> 1) Create technical drawings based on given specifications and calculations. 2) Liaise with designer to gather product and structural requirements and designs. 3) Prepare Bill of Material (BOM). 4) Calculate dimensions, weight limitations and requirements in materials. 5) Describe production methods step-by-step. 6) Create detailed designs with computer-aided design (CAD) software.	No Level.

AREA	Upholstery of Furniture (Maintenance)	Upholstery of Furniture (Product Development)	Upholstery of Furniture (Quality Assurance)
		7) Design diagrams, maps and layouts to illustrate upholstery furniture workflow.	
LEVEL 1	No Level	No Level	No Level

Table 4.22: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.10 (8 of 18)

AREA	Cane Furniture Manufacturing (Material Preparation)	Cane Furniture Manufacturing (Steam Bending)	Cane Furniture Manufacturing (Shaping)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the material preparation for cane furniture production. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the steam bending for cane furniture production. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the shaping operation for cane furniture production. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures.

AREA	Cane Furniture Manufacturing (Material Preparation)	Cane Furniture Manufacturing (Steam Bending)	Cane Furniture Manufacturing (Shaping)
	8) Set and monitor cane furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the cane furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Set and monitor cane furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the cane furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Set and monitor cane furniture product quality standards, implement and enforce quality control to meet quality objectives. 9) Determine and implement improvements to the cane furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.
LEVEL 4	<u>Production Executive</u> 1) Monitor the cane furniture production in the material preparation in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP.	<u>Production Executive</u> 1) Monitor the steam bending operation for cane furniture production in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP.	<u>Production Executive</u> 1) Monitor the shaping operation for cane furniture production in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP.

AREA	Cane Furniture Manufacturing (Material Preparation)	Cane Furniture Manufacturing (Steam Bending)	Cane Furniture Manufacturing (Shaping)
	6) Educate in quality and safety and handle workers' attendance and affairs.	6) Educate in quality and safety and handle workers' attendance and affairs.	6) Educate in quality and safety and handle workers' attendance and affairs.
LEVEL 3	<p><u>Production Supervisor</u></p> <p>1) Supervise day to day operation of the material preparation to ensure it is running according to production target and following the SOP.</p> <p>2) Monitor cane cutting and polishing activities and ensure all cutting machines and equipment are in good conditions.</p> <p>3) Ensure output according to set target and quality standard.</p> <p>4) Educate on quality and safety and handle their attendance and affair.</p> <p>5) Maintain housekeeping and safety of work area.</p> <p>6) Prepare report on any abnormality occurred.</p>	<p><u>Production Supervisor</u></p> <p>1) Supervise day to day operation of the steam bending operation to ensure it is running according to production target and following the SOP.</p> <p>2) Monitor cane cutting and polishing activities and ensure all cutting machines and equipment are in good conditions.</p> <p>3) Ensure output according to set target and quality standard.</p> <p>4) Educate on quality and safety and handle their attendance and affair.</p> <p>5) Maintain housekeeping and safety of work area.</p> <p>6) Prepare report on any abnormality occurred.</p>	<p><u>Production Supervisor</u></p> <p>1) Supervise day to day operation of the shaping operation to ensure it is running according to production target and following the SOP.</p> <p>2) Monitor cane cutting and polishing activities and ensure all cutting machines and equipment are in good conditions.</p> <p>3) Ensure output according to set target and quality standard.</p> <p>4) Educate on quality and safety and handle their attendance and affair.</p> <p>5) Maintain housekeeping and safety of work area.</p> <p>6) Prepare report on any abnormality occurred.</p>

AREA	Cane Furniture Manufacturing (Material Preparation)	Cane Furniture Manufacturing (Steam Bending)	Cane Furniture Manufacturing (Shaping)
LEVEL 2	<p><u>Senior Production Operator</u></p> <ol style="list-style-type: none"> 1) Refer to work instruction. 2) Sort the cane material according to species and sizes. 3) Ensure surface has been polished or smoothed prior to cutting. 4) Operate machines to do cross cutting according to job instruction. 5) Measure and marks material to verify dimensions using hand tools. 6) Stack the processed furniture component according to requirement. 7) Perform housekeeping at work area. 8) Follow safety guidelines. 	<p><u>Steam Bending Operator</u></p> <ol style="list-style-type: none"> 1) Refer to work instruction. 2) Sort the cane material according to species and sizes. 3) Measure the length of material. 4) Prepare steaming devices and bending jigs. 5) Perform steam bending of cane according to requirement. 6) Measure and marks material to verify dimensions using hand tools. 7) Stack the processed furniture component according to requirement. 8) Perform housekeeping at work area. 9) Follow safety guidelines. 	<p><u>Shaping Operator</u></p> <ol style="list-style-type: none"> 1) Refer to work instruction. 2) Sort the cane material according to species and sizes. 3) Measure the length of material. 4) Prepare shaping devices and jigs. 5) Perform shaping of cane according to requirement. 6) Measure and marks material to verify dimensions using hand tools. 7) Stack the processed furniture component according to requirement. 8) Perform housekeeping at work area. 9) Follow safety guidelines.
LEVEL 1	<p><u>Production Operator</u></p> <ol style="list-style-type: none"> 1) Prepare and sort the cane material according to work instruction. 2) Perform polishing or smoothing of cane surface. 3) Operate machines to do cross cutting according to job instruction. 	No Level.	No Level.

AREA	Cane Furniture Manufacturing (Material Preparation)	Cane Furniture Manufacturing (Steam Bending)	Cane Furniture Manufacturing (Shaping)
	4) Measure and marks material to verify dimensions using hand tools. 5) Stack the processed furniture component according to requirement. 6) Perform housekeeping at work area. 7) Follow safety guidelines.		

Table 4.23: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.10 (9 of 18)

AREA	Cane Furniture Manufacturing (Cane Weaving)	Cane Furniture Manufacturing (Construction & Assembly)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Not Available
LEVEL 6	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the cane weaving production schedule. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor cane furniture product quality standards, implement and enforce quality control to meet quality objectives. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the construction and assembly of cane furniture production schedule. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor cane furniture product quality standards, implement and enforce quality control to meet quality objectives.

AREA	Cane Furniture Manufacturing (Cane Weaving)	Cane Furniture Manufacturing (Construction & Assembly)
	9) Determine and implement improvements to the cane furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.	9) Determine and implement improvements to the cane furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.
LEVEL 4	<u>Production Executive</u> 1) Plan, execute and monitor cane weaving activities. 2) Monitor day to day finishing operations with optimum material usage ensuring output according to set target and finishing quality standard. 3) Set and implement the finishing quality system. 4) Ensure weaving equipment and tools are in good conditions. 5) Ensure correct PPE are used and ensure safety procedures are followed. 6) Manage subordinates to perform the job according to SOP 7) Educate quality and safety and handling their attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice.	<u>Production Executive</u> 1) Plan, execute and monitor cane furniture construction and assembly activities. 2) Monitor day to day assembly operations with optimum material usage ensuring output according to set target and quality standard. 3) Set and implement the construction and assembly quality system. 4) Ensure assembly equipment and tools are in good conditions. 5) Ensure correct PPE are used and ensure safety procedures are followed. 6) Manage subordinates to perform the job according to SOP, 7) Educate quality and safety and handling their attendance and affairs. 8) Ensure that all tasks performed are in accordance with safe working practice.

AREA	Cane Furniture Manufacturing (Cane Weaving)	Cane Furniture Manufacturing (Construction & Assembly)
LEVEL 3	<p><u>Senior Cane Weaver</u></p> <ol style="list-style-type: none"> 1) Study wicker design and specification. 2) Select material for cane weaving or wicker making process. 3) Weave stripe of cane in standard pattern to form furniture parts such as chair seat and chair back. 4) Cut cane strips to length using cutting tools. 5) Clamp smaller furniture parts pieces to hold frame. 6) Interlace cane strips through frame holes into horizontal, vertical and diagonal direction to form hand woven pattern. 7) Inspect the woven pattern to ensure it gets a desired tension. 8) Send finish wicker for sanding and lacquering. 9) Ensure housekeeping of work area and safety guidelines are followed. 	<p><u>Senior Assembler</u></p> <ol style="list-style-type: none"> 1) Check all furniture parts and components are glued or joined properly and accepted for assembly. 2) Check all assembly jigs, tools and equipment are properly set and in good conditions. 3) Ensure correct padding is applied to furniture frame as per requirement. 4) Ensure spring and webbing is installed to the frame as per requirement. 5) Check furniture components, to ensure adhesive is applied at joints. 6) Install hardware and fittings when required according to assembly instruction. 7) Ensure frame is properly constructed and assembled prior to upholstering process.
LEVEL 2	<p><u>Cane Weaver</u></p> <ol style="list-style-type: none"> 1) Interpret work order. 2) Use selected material for cane weaving process. 3) Weave stripe of cane in standard pattern to form furniture parts such as chair seat and chair back. 4) Cut cane strips to length using cutting tools. 5) Clamp smaller furniture parts pieces to hold frame. 	<p><u>Assembler</u></p> <ol style="list-style-type: none"> 1) Apply glue to frame joints. 2) Check all furniture parts and components are glued or joined properly and accepted for assembly. 3) Check all assembly jigs, tools and equipment are properly set and in good conditions before use. 4) Assemble padding material to the frame according to work instruction.

AREA	Cane Furniture Manufacturing (Cane Weaving)	Cane Furniture Manufacturing (Construction & Assembly)
	<ul style="list-style-type: none"> 6) Interlace cane strips through frame holes into horizontal, vertical and diagonal direction to form hand woven pattern. 7) Send finish wicker for sanding and lacquering. 8) Wear proper PPE and perform housekeeping of work area. 9) Follow safety guidelines. 	<ul style="list-style-type: none"> 5) Install spring and webbing to the frame as per requirement. 6) Install hardware and fittings as when required according to assembly instruction. 7) Check that assembled components are properly secured. 8) Assemble components into final furniture parts or products prior to upholstering process. 9) Perform housekeeping of work area. 10) Follow safety guidelines.
LEVEL 1	No Level	No Level

Table 4.24: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.10 (10 of 18)

AREA	Cane Furniture Manufacturing (Finishing)	Cane Furniture Manufacturing (Quality Assurance)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Not Available
LEVEL 6	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the cane furniture production schedule. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 8) Set and monitor cane furniture product quality standards, implement and enforce quality control to meet quality objectives. 	<p><u>Quality Assurance Manager</u></p> <ol style="list-style-type: none"> 1) Formulate and set quality policies according to cane furniture quality standards. 2) Ensure that furniture products meet standards set by both company and regulatory authorities. 3) Develop and review quality and safety policies and manage audits by third-party inspection on manufacturing facilities for compliance with standards. 4) Determine methods to resolve any quality issues that arise. 5) Review customer feedback and respond to any quality complaints. 6) Monitor the verification and follow-up the quality issues. 7) Inspect facilities for compliance with standards, and determine methods to resolve any issues that arise. 8) Ensure Quality Awareness training is conducted across the function and advise top management on quality improvements matters.

AREA	Cane Furniture Manufacturing (Finishing)	Cane Furniture Manufacturing (Quality Assurance)
	9) Determine and implement improvements to the cane furniture production process. 10) Monitor and review the performance of staff and organise necessary training program for improvement.	
LEVEL 4	<u>Finishing Executive</u> 1) Monitor day to day finishing and upholstering operations with optimum material usage ensuring output according to set target and finishing quality standard. 2) Set and implement the finish product quality system. 3) Ensure finishing equipment and tools are in good conditions. 4) Ensure correct PPE are used and ensure safety procedures are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate quality and safety and handling their attendance and affairs. 7) Ensure that all tasks performed are in accordance with safe working practice.	<u>Quality Assurance Executive</u> 1) Implement quality policies according to furniture quality standards. 2) Verify cane furniture products meet standards set by both company and regulatory authorities. 3) Propose methods to resolve any quality issues that arise. 4) Obtain and assess customer feedback to any quality complaints. 5) Follow-up and verify on quality issues. 6) Perform all incoming material and component inspection activities. 7) Conduct Quality Awareness training production staff 8) Propose quality improvements matters.
LEVEL 3	<u>Senior Finisher</u> 1) Refer to cane furniture specification. 2) Check cane and wicker quality prior to finishing. 3) Apply finishing to cane and wicker as per requirement. 4) Perform upholstering work as per requirement.	<u>Quality Inspector</u> 1) Inspect raw material to ensure consistency and according to specified requirements. 2) Perform in process quality inspection at the material preparation, processing, machining operations.

AREA	Cane Furniture Manufacturing (Finishing)	Cane Furniture Manufacturing (Quality Assurance)
	5) Operate sewing machines or sew upholstery by hand to seam cushions and join various sections of covering material. 6) Attach fasteners, trim, and other accessories to covers using hand tools. 7) Ensure housekeeping and safety of work area.	3) Notify the operators when there are machining or processing defects and propose rectification work. 4) Perform finish product quality inspection as per quality acceptance guidelines prior to storage or shipment. 5) Record all production and manufacturing quality issues. 6) Assess quality performance and report to management.
LEVEL 2	<u>Finisher</u> 1) Check cane and wicker quality prior to finishing. 2) Apply finishing materials to cane and wicker as per requirement. 3) Perform upholstering work as per requirement. 4) Operate sewing machines or sew upholstery by hand to seam cushions and join various sections of covering material. 5) Send finish wicker for sanding and lacquering. 6) Proper handling and wear proper PPE. 7) Ensure the cleanliness of the work area.	No Level
LEVEL 1	<u>Material Preparation Operator</u> 1) Prepare finishing material according to work instruction. 2) Prepare upholstery materials such as fabric, PVC and leather as per work instruction. 3) Use proper tools in material preparations. 4) Cut the materials according to requirement.	No Level

AREA	Cane Furniture Manufacturing (Finishing)	Cane Furniture Manufacturing (Quality Assurance)
	5) Check the quality and conditions of material. 6) Perform housekeeping at work area. 7) Follow safety guidelines.	

Table 4.25: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.11 (11 of 18)

AREA	Metal Furniture Manufacturing (Material Preparation)	Metal Furniture Manufacturing (Fabrication)	Metal Furniture Manufacturing (Bending)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan implement and control the material preparation in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan implement and control the fabrication in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan implement and control the bending operation in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process.

AREA	Metal Furniture Manufacturing (Material Preparation)	Metal Furniture Manufacturing (Fabrication)	Metal Furniture Manufacturing (Bending)
	8) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Monitor and review the performance of staff and organise necessary training program for improvement.
LEVEL 4	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the material preparation in metal furniture production in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs. 	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the fabrication in metal furniture production in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs. 	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the bending operation in metal furniture production in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs.
LEVEL 3	<p><u>Material Preparation Supervisor</u></p> <ol style="list-style-type: none"> 1) Supervise day to day material preparation. 2) Ensure all machine and equipment are in good conditions. 3) Ensure output according to set target and quality standard. 	<p><u>Fabrication Supervisor</u></p> <ol style="list-style-type: none"> 1) Supervise day to day fabrication works. 2) Ensure all fabricating machines and equipment are in good conditions. 3) Ensure output according to set target and quality standard. 	<p><u>Senior Bending Operator</u></p> <ol style="list-style-type: none"> 1) Supervise day to day bending operation. 2) Sets up bending machine as per job requirements. 3) Perform difficult metal bending jobs to bend metal structural shapes to angle or

AREA	Metal Furniture Manufacturing (Material Preparation)	Metal Furniture Manufacturing (Fabrication)	Metal Furniture Manufacturing (Bending)
	4) Educate on quality and safety and handling their attendance and affair. 5) Maintain housekeeping and safety of work area. 6) Prepare report on any abnormality occurred.	4) Educate on quality and safety and handling their attendance and affair. 5) Maintain housekeeping and safety of work area. 6) Prepare report on any abnormality occurred.	contour specified by work order, drawings, templates, or layout. 4) Ensure all bending machine and equipment are in good conditions. 5) Ensure output according to set target and quality standard. 6) Educate on quality and safety and handle their attendance and affair. 7) Maintain housekeeping and safety of work area. 8) Prepare report on any abnormality occurred.
LEVEL 2	<u>Senior Machine Operator</u> 1) Select material for metal furniture making process. 2) Perform cutting process. 3) Measure the cut material. 4) Perform shearing for metal sheet. 5) Measure the cut material according to requirement. 6) Send cut metal for shearing process. 7) Wear proper PPE. 8) Ensure the cleanliness of the work area.	<u>Senior Fabrication Operator</u> 1) Select material for metal furniture making process. 2) Perform cutting process. 3) Set up and operates metal fabricating machines according to specifications. 4) Determine machine setup, production methods, and sequence of operation. 5) Select, position and secure dies, blades, cutters, and fixtures onto machine.	<u>Bending Operator</u> 1) Operate machine to bend metal structural shapes, such as bars, rods, angles, pipes, and tubes according to contour specified by work order. 2) Bolt holding clamp, die block, and guide clamp to machine. 3) Position and clamp end stops on machine to set specified location of bend. 4) Insert or screw plug stops into guide wheel to set specified degree of bend.

AREA	Metal Furniture Manufacturing (Material Preparation)	Metal Furniture Manufacturing (Fabrication)	Metal Furniture Manufacturing (Bending)
	9) Perform housekeeping at work area. 10) Follow safety guidelines.	6) Position and clamp stops, guides, and turntables. 7) Adjust controls to set and regulate machining factors, such as pressure and depth of ram stroke, adjustment rolls, blade angle, and machine speed. 8) Locate and mark bending or cutting lines and reference points on workpiece. 9) Position workpiece against stops and guides or align layout marks with dies or cutting blades manually or using hoist. 10) Start machine and observe machine operation to reposition workpiece, change dies, or adjust machine settings for multiple or successive passes. 11) Inspect or measure work using rule, gauges, and templates.	5) Position workpiece against end stop. 6) Lock holding clamp and guide clamp onto workpiece. 7) Lubricate or pre-heat workpiece if required. 8) Fill tubes or pipe with sand, resin, or lead to prevent wrinkling or collapsing during bending operation. 9) Bend tube or pipe manually around forming blocks. 10) Flare tube ends, using tube flarer and cut or trim metal stock to length, using power shears or saws. 11) Perform housekeeping of work area. 12) Wear PPE and follow safety guidelines.
LEVEL 1	<u>Material Preparation Operator</u> 1) Select material for metal furniture making process. 2) Perform cutting for metal tubing. 3) Perform shearing for metal sheet. 4) Measure the cut material.	<u>Fabrication Operator</u> 1) Operate metal fabricating machines to form metal plates, sheets, and structural shapes. 2) Select, position and secure dies, blades, cutters, and fixtures onto machine, using	No Level

AREA	Metal Furniture Manufacturing (Material Preparation)	Metal Furniture Manufacturing (Fabrication)	Metal Furniture Manufacturing (Bending)
	<ul style="list-style-type: none"> 5) Send cut metal for shearing process. 6) Ensure the cleanliness of the work area. 7) Perform housekeeping at work area. 8) Follow safety guidelines. 	<ul style="list-style-type: none"> rule, square, shims, templates, hand tools, and built-in gauge. 3) Positions and clamp stops, guides, and turntables. 4) Adjusts controls to set and regulate pressure and speed. 5) Locate and mark bending or cutting lines and reference points on workpiece. 6) Position workpiece against stops and guides or align layout marks with dies or cutting blades. 7) Start machine and observe machine operation to reposition workpiece. 8) Inspect or measure work using rule, gauges, and templates. 9) Perform housekeeping at work area. 10) Follow safety guidelines. 	

Table 4.26: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.11 (12 of 18)

AREA	Metal Furniture Manufacturing (CNC Machining)	Metal Furniture Manufacturing (Welding)	Metal Furniture Manufacturing (Jig Making)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the CNC Machining operation in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. implement and enforce quality control to meet quality objectives. 6) Determine and implement improvements to the furniture production process. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the welding operation in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan. implement and control the jig making operation in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process.

AREA	Metal Furniture Manufacturing (CNC Machining)	Metal Furniture Manufacturing (Welding)	Metal Furniture Manufacturing (Jig Making)
	7) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Monitor and review the performance of staff and organise necessary training program for improvement.
LEVEL 4	<p><u>Production Executive</u></p> <p>1) Monitor the entire metal furniture production in order to achieve production target.</p> <p>2) Implement the production quality system.</p> <p>3) Ensure furniture machineries and equipment are in good conditions.</p> <p>4) Evaluate and ensure production disciplines are followed.</p> <p>5) Manage subordinates to perform the job according to SOP.</p> <p>Educate in quality and safety and handle workers' attendance and affairs.</p>	<p><u>Production Executive</u></p> <p>1) Monitor the entire metal furniture production in order to achieve production target.</p> <p>2) Implement the production quality system.</p> <p>3) Ensure furniture machineries and equipment are in good conditions.</p> <p>4) Evaluate and ensure production disciplines are followed.</p> <p>5) Manage subordinates to perform the job according to SOP.</p> <p>Educate in quality and safety and handle workers' attendance and affairs.</p>	<p><u>Production Executive</u></p> <p>1) Monitor the entire metal furniture production in order to achieve production target.</p> <p>2) Implement the production quality system.</p> <p>3) Ensure furniture machineries and equipment are in good conditions.</p> <p>4) Evaluate and ensure production disciplines are followed.</p> <p>5) Manage subordinates to perform the job according to SOP.</p> <p>Educate in quality and safety and handle workers' attendance and affairs.</p>

AREA	Metal Furniture Manufacturing (CNC Machining)	Metal Furniture Manufacturing (Welding)	Metal Furniture Manufacturing (Jig Making)
LEVEL 3	<p><u>Senior CNC Machinist</u></p> <ol style="list-style-type: none"> 1) Oversee the technical and production aspects of all machines and equipment at the CNC Machining section. 2) Perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring and work-holding issues, and material issues. 3) Perform training to new operators. 4) Oversee production and drive improvement to exiting processes. 5) Implement new products, tooling, programming and inspection. 6) Implement new capital equipment-installation, training, initial start-up, production ramp. 7) Work with vendors on material/tooling issues. 8) Perform supervision job according to SOP 9) Educate on quality and safety and handle their attendance and affair. 10) Maintain housekeeping and safety of work area. 	<p><u>Senior Welder</u></p> <ol style="list-style-type: none"> 1) Supervise day to day material preparation. 2) Sets-up and operate welding machines that join or bond components to fabricate metal furniture products or assemblies. 3) Observe and listen to welding machine and its gauges to ensure welding process meets specifications. 4) Turn and press controls, such as cranks, knobs, and buttons to adjust and activate welding process. 5) Operate welding machine to produce trial workpieces, used to examine and test. 6) Examine metal furniture components or assemblies. 7) Devise and build fixtures used to bond components, during the welding process. 8) Inspect to ensure workpieces and welding machine parts are cleaned and maintained using hand tools and equipment. 9) Maintain housekeeping and safety of work area. 	<p><u>Senior Jig Maker</u></p> <ol style="list-style-type: none"> 1) Create prototype products, fixtures, and jigs prior to production. 2) Supervise day to day jig making operation. 3) Design jigs, fixtures, and templates to be used as work aids in the fabrication of parts or products. 4) Assemble a variety of standard and non-standard major jigs, fixtures and related tooling. 5) Ensure jigs function appropriately with complex angles or contours. 6) Conduct test runs with completed jigs to ensure that parts meet specifications; make adjustments as necessary. 7) Determine methods and sequence of operations and scheduling work to be performed from tool design drawings. L3 8) Design and create jig and fixture details and holding devices. 9) Verify accuracy and quality in accordance with established control procedures.

AREA	Metal Furniture Manufacturing (CNC Machining)	Metal Furniture Manufacturing (Welding)	Metal Furniture Manufacturing (Jig Making)
LEVEL 2	<p><u>CNC Machinist</u></p> <ol style="list-style-type: none"> 1) Prepare and operate CNC machines to perform tasks such as drilling, grinding, milling and etc. 2) Interpret specifications of the task at hand and the desired result by reading blueprints, mechanical drawings and etc. 3) Translate instructions into computer commands so the machines can perform the correct function. 4) Prepare and load raw materials and parts onto the machines. 5) Prepare a test run to check if the machines produce outputs according to specifications. 6) Set machines to complete full cycles to fabricate large number of parts. 7) Monitor the machine executing the tasks and make any necessary adjustments to produce a better result. 8) Report to superior on production issues. 	<p><u>Welder</u></p> <ol style="list-style-type: none"> 1) Operate welding machines that join or bond components to fabricate metal products and assemblies. 2) Turn and press knobs and buttons to adjust and start welding machine. 3) Stop and open holding device on welding machine, using hand tools. 4) Read production schedule and specifications to ascertain product to be welded. 5) Position and adjust fixtures, attachments, or workpiece on machine, using hand tools and measuring devices. 6) Observe and listen to welding machine and its controls to ensure welding process meets specifications. 7) Inspect metal workpiece to ensure specifications are met, using measuring devices. 8) Transfer components, metal products, and assemblies, using moving equipment. 	<p><u>Jig Maker</u></p> <ol style="list-style-type: none"> 1) Produce fixtures and jigs prior to production as per requirement. 2) Make jigs, fixtures, and templates to be used use as work aids in the fabrication of parts or products 3) Assemble a variety of standard and non-standard major jigs, fixtures and related tooling. 4) Check jigs function appropriately with complex angles or contours. 5) Conduct test runs and make adjustments as necessary. 6) Check accuracy and quality in accordance with established control procedures. 7) Report superior on issues arise during jig making.

AREA	Metal Furniture Manufacturing (CNC Machining)	Metal Furniture Manufacturing (Welding)	Metal Furniture Manufacturing (Jig Making)
		9) Clean and maintain workpieces and welding machine parts, using hand tools and equipment. 10) Perform housekeeping at work area.	
LEVEL 1		<u>Spot Welding Operator</u> 1) Refer to work instruction. 2) Sort the welding material and equipment according to requirement. 3) Weld or tack weld metal parts together, using spot welding gun or other welding equipment. 4) Connect hoses from torch to tanks of oxygen and fuel gas, and turns valves to release mixture. 5) Ignite torch and regulate flow of gas and air to obtain desired temperature, size, and colour of flame. 6) Preheat workpieces preparatory to welding or bending, using torch. 7) Fill cavities or correct malformation in lead parts and hammer out bulges and bend in metal workpieces.	

AREA	Metal Furniture Manufacturing (CNC Machining)	Metal Furniture Manufacturing (Welding)	Metal Furniture Manufacturing (Jig Making)
		8) Examine workpiece for defects and measure workpiece to ensure conformance with specifications. 9) Perform housekeeping at work area.	

Table 4.27: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.11 (13 of 18)

AREA	Metal Furniture Manufacturing (Mould Making)	Metal Furniture Manufacturing (Sand Blasting)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Not Available
LEVEL 6	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the mould making in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 8) Monitor and review the performance of staff and organise necessary training program for improvement. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the sand blasting in metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 8) Monitor and review the performance of staff and organise necessary training program for improvement.

AREA	Metal Furniture Manufacturing (Mould Making)	Metal Furniture Manufacturing (Sand Blasting)
LEVEL 4	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the mould making in metal furniture production in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs. 	<p><u>Production Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the sand blasting operation in metal furniture production in order to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs.
LEVEL 3	<p><u>Senior Mould Maker</u></p> <ol style="list-style-type: none"> 1) Develop new tooling for moulds, die cast tooling, and metal stamping tools according to specifications. 2) Set up equipment by studying the mould making requirements and materials. 3) Plan the moulds need to create by following instructions and sketches or schematics drawing. 4) Check the existing tooling and moulds are still effective, maintain them regularly and repair any damage when required. 5) Supervise day to day mould making operation. 	<p><u>Sand Blasting Supervisor</u></p> <ol style="list-style-type: none"> 1) Select type of equipment or abrasive used for sand blasting operation 2) Oversee day to day sand blasting operation. 3) Perform troubleshooting of all sand blasting machines. 4) Perform training to new operators. 5) Inspect finished furniture parts to ensure conformance to specifications. 6) Select type of equipment or abrasive used for sand blasting operation. 7) Maintain housekeeping and safety of work area.

AREA	Metal Furniture Manufacturing (Mould Making)	Metal Furniture Manufacturing (Sand Blasting)
LEVEL 2	<p><u>Mould Maker</u></p> <ol style="list-style-type: none"> 1) Mix modelling material, such as plaster powder and water, or mud, sand, and loam, to specified formula. 2) Melt metal pieces using torch and casts products such as casting machine. 3) Construct moulds used for casting metal, clay or plaster objects. 4) Assemble hardened moulds and seals joints. 5) Place form around model and separately immerse each half portion of model in plaster, wax, or other mould-making material. 6) Cover portions of model with layers of modelling or casting material treated to harden when allowed to set or dry. 7) Remove excess mould material, such as plaster, wax, or rubber. 8) Smooth surfaces of mould, using scraping tool and sandpaper. 9) Cover model or pattern of object from which mould is to be made with lubricant or parting agent. 10) Bore holes or cut grates and risers in mould, using power tools. 11) Separate model or pattern from mould. 12) Examine mould for accuracy. 13) Perform housekeeping at work area. 14) Follow safety guidelines. 	<p><u>Senior Sand Blasting Operator</u></p> <ol style="list-style-type: none"> 1) Abrades surfaces of metal or hard-composition objects to remove adhering scale, sand, paint, grease, tar, rust, and dirt. 2) Impart specified finish, using abrasive-blasting equipment. 3) Cover specified areas of object to protect from abrading action. 4) Load parts on racks in enclosed rooms, into tumbling barrels, or into cabinets. 5) Turn valves on equipment to regulate pressure and composition of abrasive mixture flowing through nozzle or into tumbling barrel. 6) Start equipment that directs blast or flow of abrasive-laden compressed air, gas, or liquid over surface of parts. 7) Direct nozzle over surface of large parts. 8) Examine finished parts to ensure conformance to specifications. 9) Perform housekeeping at work area. 10) Follow safety guidelines.

AREA	Metal Furniture Manufacturing (Mould Making)	Metal Furniture Manufacturing (Sand Blasting)
LEVEL 1	No Level	<p><u>Sand Blasting Operator</u></p> <ol style="list-style-type: none"> 1) Abrade surfaces of metal or hard-composition objects to remove adhering scale, sand, paint, grease, tar, rust, and dirt. 2) Impart specified finish, using abrasive-blasting equipment. 3) Cover specified areas of object to protect from abrading action. 4) Load parts on racks in enclosed rooms, into tumbling barrels, or into cabinets. 5) Turn valves on equipment to regulate pressure and composition of abrasive mixture flowing through nozzle or into tumbling barrel. 6) Start equipment that directs blast or flow of abrasive-laden compressed air, gas, or liquid over surface of parts. 7) Direct nozzle over surface of large parts. 8) Examine finished parts to ensure conformance to specifications. 9) Perform housekeeping at work area. 10) Follow safety guidelines.

Table 4.28: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.12 (14 of 18)

AREA	Metal Furniture Manufacturing (Dipping)	Metal Furniture Manufacturing (Spraying)	Metal Furniture Manufacturing (Powder Coating)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the finishing of metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the finishing metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the powder coating finishing line of metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process.

AREA	Metal Furniture Manufacturing (Dipping)	Metal Furniture Manufacturing (Spraying)	Metal Furniture Manufacturing (Powder Coating)
	8) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Monitor and review the performance of staff and organise necessary training program for improvement.	8) Monitor and review the performance of staff and organise necessary training program for improvement.
LEVEL 4	<p><u>Finishing Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the dipping operation in finishing line to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs. 	<p><u>Finishing Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the spraying finishing line to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs. 	<p><u>Finishing Executive</u></p> <ol style="list-style-type: none"> 1) Monitor the furniture production powder coating finishing line to achieve production target. 2) Implement the production quality system. 3) Ensure furniture machineries and equipment are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. 6) Educate in quality and safety and handle workers' attendance and affairs.
LEVEL 3	<p><u>Dipping Supervisor</u></p> <ol style="list-style-type: none"> 1) Supervise day to day finishing using dipping operation. 2) Ensure all dipping devices and equipment are in good conditions. 	<p><u>Senior Finishing Sprayer</u></p> <ol style="list-style-type: none"> 1) Perform finishing activities by using finishing technology, finishing systems and chemicals preparation. 	<p><u>Machinist</u></p> <ol style="list-style-type: none"> 1) Supervise day to day powder coating line operation. 2) Ensure all equipment are in good conditions.

AREA	Metal Furniture Manufacturing (Dipping)	Metal Furniture Manufacturing (Spraying)	Metal Furniture Manufacturing (Powder Coating)
	3) Ensure output according to set target and quality standard. 4) Educate on quality and safety and handle their attendance and affair. 5) Maintain housekeeping and safety of work area. 6) Prepare report on any abnormality occurred.	2) Inspect all finishing equipment such as spray gun and spray booth are in good working conditions. 3) Check finishing material is being prepared according to mixing specification. 4) Monitor day to day finishing process to ensure output according to set finishing quality standard or requirement. 5) Brief operators on quality and safety standards. 6) Maintain housekeeping and safety of work area.	3) Oversee the technical and production aspects of all CNC equipment at powder coating line. 4) Perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring & work-holding issues, and material issues. 5) Oversee production and drive improvement to exiting processes. 6) Implement new products, tooling, programming and inspection. 7) Work with vendors on material/tooling issues.
LEVEL 2	<u>Senior Dipping Operator</u> 1) Interpret finishing work requirement. 2) Check the metal parts products to be finished by dipping process. 3) Prepare finishing chemical into the dipping device or machine. 4) Dip the metal furniture parts or component into the finishing chemical. 5) Dry the components as per requirement. 6) Rework or reject defective products.	<u>Finishing Sprayer</u> 1) Interpret finishing work requirement. 2) Select finishing material and spraying equipment. 3) Check the material or products to be sprayed are properly sanded according to requirement. 4) Spray furniture products, parts or components according to requirements. 5) Rework or reject defective products.	No Level

AREA	Metal Furniture Manufacturing (Dipping)	Metal Furniture Manufacturing (Spraying)	Metal Furniture Manufacturing (Powder Coating)
	7) Clean the finishing equipment after use. 8) Perform housekeeping of work area.	6) Clean the finishing equipment after use. 7) Perform housekeeping of work area.	
LEVEL 1	<u>Dipping Operator</u> 1) Refer work order. 2) Prepare the metal parts products to be finished by dipping process. 3) Prepare finishing chemical into the dipping device or machine. 4) Dip the metal furniture parts or component into the finishing chemical. 5) Dry the components as per requirement. 6) Clean the finishing equipment after use. 7) Perform housekeeping of work area.	No Level	No Level

Table 4.29: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.12 (15 of 18)

AREA	Metal Furniture Manufacturing (Assembly)	Metal Furniture Manufacturing (Product Development)	Metal Furniture Manufacturing (Production Planning and Control)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the assembly line of metal furniture production. 2) Manage human and material resources to meet production targets. 3) Implement standard operating procedures for production operations and ensure that SOP are adhered to. 4) Ensure implementation and adherence to health and safety procedures. 5) Establish metal furniture product quality standards. 6) Implement and enforce quality control to meet quality objectives. 7) Determine and implement improvements to the furniture production process. 	<p><u>Product Development Manager</u></p> <ol style="list-style-type: none"> 1) Conduct market research to identify new furniture product and market opportunities. 2) Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement. 3) Investigate with buyers on any product issues, complaints, withdrawals, recalls, returns, ratings & reviews and etc. 4) Carry out an initial assessment of products to ensure safety, legality and quality 5) Drive product engineering discussions with suppliers, including use of preferred component suppliers and management. 6) Pre-screen all development samples, ensuring company requirements are met. 	<p><u>Production Planning and Control Manager</u></p> <ol style="list-style-type: none"> 1) Analyse current production capacity and plan on improvement on productivity and efficiency. 2) Determine overall manpower, equipment and raw materials needed to cover monthly furniture production. 3) Plan and prioritise operations to ensure maximum production output. 4) Monitor jobs to ensure they will finish on time and within budget. 5) Analyse output information (number of finished products, percentage of defectives). 6) Evaluate production status and performance report. 7) Liaise with production and material procurement management team.

AREA	Metal Furniture Manufacturing (Assembly)	Metal Furniture Manufacturing (Product Development)	Metal Furniture Manufacturing (Production Planning and Control)
	Monitor and review the performance of staff and organise necessary training program for improvement.	7) Provide any technical comments and suggestion for product improvement. 8) Provide comprehensive product information for all aspects of new product launches. 9) Communicate features and benefits in support of go to market strategy.	
LEVEL 4	<u>Assembly Executive</u> 1) Monitor the metal furniture assembly line in order to achieve production target. 2) Implement the production quality system. 3) Ensure assembly equipment and jigs are in good conditions. 4) Evaluate and ensure production disciplines are followed. 5) Manage subordinates to perform the job according to SOP. Educate in quality and safety and handling workers attendance and affairs.	<u>Product Development Executive</u> 1) Update furniture current market trend and needs. 2) Plan, execute and monitor furniture product development activities. 3) Prepare target in new product development with optimum material usage. 4) Prepare bill of material and costing on new products. 5) Set quality level requirements for a new product. 6) Develop company's product catalogue. 7) Monitor the entire product development activities according to SOP.	<u>Production Planning and Control Executive</u> 1) Assess current production capacity and propose on improvement on productivity and efficiency. 2) Determine manpower, equipment and raw materials needed to cover furniture production demand. 3) Plan and prioritise operations to ensure maximum production output. 4) Prepare production planning schedule. 5) Schedule shift according to production needs. 6) Report on production status and evaluate output information such as number of

AREA	Metal Furniture Manufacturing (Assembly)	Metal Furniture Manufacturing (Product Development)	Metal Furniture Manufacturing (Production Planning and Control)
		8) Ensure furniture designing team to achieve target according to timeframe requirement.	finished products and percentage of defectives. 7) Address issues when they arise aiming for minimum disruption. 8) Collaborate with quality control, warehouse and other staff.
LEVEL 3	<p><u>Assembly Supervisor</u></p> <ol style="list-style-type: none"> 1) Supervise day to day operation at assembly section to ensure it is running according to production target and following Standard Operation Procedures (SOP). 2) Monitor and coordinate all furniture assembling activities. 3) Ensure all assembly equipment and materials are in good conditions. 4) Ensure assembled products are according to set target and quality standard. 5) Brief operators on quality and safety and handle their attendance and affair. 6) Maintain housekeeping and safety of work area. 	<p><u>Product Designer</u></p> <ol style="list-style-type: none"> 1) Determine current design requirement and prepare itemized production requirements to produce furniture item. 2) Prepare or direct preparation of blueprints containing manufacturing specifications, such as dimensions, kind of wood, and upholstery fabrics to be used in manufacturing furniture. 3) Design and prepare detailed drawings of jigs, fixtures, forms, or tools required to be used in production. 4) Plan modifications for completed furniture to conform to changes in design trends and increase customer acceptance. 5) Build construction of models or prototypes. 	<p><u>Production Planning and Control Officer</u></p> <ol style="list-style-type: none"> 1) Check manpower availability. 2) Check current machine utilisation and capacity. 3) Oversee day to day operation at all sections to ensure production is run according to set schedule. 4) Obtain output information (number of finished products, percentage of defectives and etc.). 5) Prepare and submit status and performance reports. 6) Keep paperwork organised.

AREA	Metal Furniture Manufacturing (Assembly)	Metal Furniture Manufacturing (Product Development)	Metal Furniture Manufacturing (Production Planning and Control)
		6) Identify potential operational issues and redesign products to improve functionality. 7) Ensure final designs comply with regulations and quality standards. 8) Create manuals that describe existing products' operation, features and maintenance.	
LEVEL 2	<u>Senior Assembler</u> 1) Lead the assembly processes in order and ensure it is running according to production target and following SOP. 2) Check all furniture parts and components are glued or joined properly and accepted for assembly. 3) Check all assembly jigs, tools and equipment are properly set and in good conditions. 4) Monitor day to day assembly operation and ensure output according to set target and quality standard. 5) Maintain housekeeping and safety of work area.	<u>Draughtsman</u> 1) Create technical drawings based on given specifications and calculations. 2) Liaise with designer to gather product and structural requirements and designs. 3) Prepare Bill of Material (BOM). 4) Calculate dimensions, weight limitations and requirements in materials. 5) Describe production methods step-by-step. 6) Create detailed designs with computer-aided design (CAD) software. 7) Design diagrams, maps and layouts to illustrate workflow.	No Level

AREA	Metal Furniture Manufacturing (Assembly)	Metal Furniture Manufacturing (Product Development)	Metal Furniture Manufacturing (Production Planning and Control)
	6) Record all work performed in the log book.		
LEVEL 1	<p><u>Assembly Operator</u></p> <ol style="list-style-type: none"> 1) Assemble components into final furniture parts or products prior to packing according to instruction. 2) Check furniture components, apply adhesive at joints, install hardware and fittings as when required according to assembly instruction. 3) Wrap the finished components with wrapping materials prior to packing into carton boxes to prevent from scratches according to requirements. 4) Operate the assembly and packing equipment in order to perform the activities smoothly. 5) Perform housekeeping at work area. 6) Follow safety requirements. 	No Level	No Level

Table 4.30: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.12 (16 of 18)

AREA	Metal Furniture Manufacturing (Quality Assurance)	Metal Furniture Manufacturing (Maintenance)
LEVEL 8	Not Available	Not Available
LEVEL 7	Not Available	Not Available
LEVEL 6	Not Available	Not Available
LEVEL 5	<p><u>Quality Assurance Manager</u></p> <ol style="list-style-type: none"> 1) Formulate and set quality policies according to furniture quality standards. 2) Ensure that furniture products meet standards set by both company and regulatory authorities. 3) Develop and review quality and safety policies and manage audits by third-party inspection on manufacturing facilities for compliance with standards. 4) Determine methods to resolve any quality issues that arise. 5) Review customer feedback and respond to any quality complaints. 6) Develop and manage new product testing requirements including new material application test. 7) Manage the disposal of non-conforming material. 8) Monitor the verification and follow-up of quality issues. 9) Inspect facilities for compliance with standards, determine methods to resolve any issues that arise. 	<p><u>Maintenance Manager</u></p> <ol style="list-style-type: none"> 1) Develop maintenance procedure and ensure implementation. 2) Carry out inspections of the facilities to identify and resolve issues. 3) Check electrical and hydraulic systems of buildings to ensure functionality. 4) Plan and oversee all repair and installation activities. 5) Allocate workload and supervise upkeep staff (custodians, janitors and etc.). 6) Monitor equipment inventory and place orders when necessary. 7) Monitor expenses and control the budget for maintenance. 8) Manage relationships with contractors and service providers. 9) Keep maintenance logs and report on daily activities. 10) Ensure health and safety policies are complied with.

AREA	Metal Furniture Manufacturing (Quality Assurance)	Metal Furniture Manufacturing (Maintenance)
	10) Ensure Quality Awareness training is conducted across the function and advise top management on quality improvements matters.	
LEVEL 4	<p><u>Quality Assurance Executive</u></p> <ol style="list-style-type: none"> 1) Implement quality policies according to furniture quality standards. 2) Verify furniture products meet standards set by both company and regulatory authorities. 3) Propose methods to resolve any quality issues that arise. 4) Obtain and assess customer feedback to any quality complaints; 5) Follow-up and verify on quality issues. 6) Perform all incoming material and component inspection activities. 7) Coordinate the disposal of non-conforming material. 8) Inspect facilities for compliance with standards, determining methods to resolve any issues that arise. 9) Conduct Quality Awareness training production staff. 10) Propose quality improvements matters. 	<p><u>Maintenance Executive</u></p> <ol style="list-style-type: none"> 1) Survey buildings and mechanical systems to ensure they are consistent with health and safety standards. 2) Monitor maintenance of electrical systems. 3) Monitor setup of ventilation, refrigeration and other systems and repair work. 4) Monitor heating and plumbing systems to ensure functionality. 5) Monitor alarm systems (fire, protection) and schedule repairs when needed. 6) Ensure pest control activities such as spraying insecticide carried out regularly. 7) Develop general upkeep procedures (e.g. landscaping) and other tasks as assigned (painting, carpentry and etc.). 8) Assist in maintenance budget preparation and ensure it is followed.
LEVEL 3	<p><u>Quality Inspector</u></p> <ol style="list-style-type: none"> 1) Perform incoming material quality inspection. 2) Perform in process quality inspection. 3) Perform finish product quality inspection. 	<p><u>Maintenance Technician</u></p> <ol style="list-style-type: none"> 1) Perform regular inspection on building maintenance. 2) Repair mechanical systems to ensure they are consistent with health and safety standards.

AREA	Metal Furniture Manufacturing (Quality Assurance)	Metal Furniture Manufacturing (Maintenance)
	4) Record all production and manufacturing quality issues. 5) Assess quality performance and report to management.	3) Perform maintenance of electrical systems (replace light bulbs and sockets, clean and repair circuit breaker panels and etc.). 4) Assist in the setup of ventilation, refrigeration and other systems and conduct repairs when necessary. 1) Maintain heating and plumbing systems to ensure functionality. 2) Inspect alarm systems (fire, protection) and schedule repairs when needed. 3) Perform manual repairs when necessary (fix locks, replace windows and etc.). 4) Undertake activities of pest control such as spraying insecticide.
LEVEL 2	No Level	No Level
LEVEL 1	No Level	No Level

Table 4.31: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.13 (17 of 18)

AREA	Plastic Furniture Manufacturing (Injection Moulding)	Plastic Furniture Manufacturing (Jig Making)	Plastic Furniture Manufacturing (Mould Making)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the injection moulding operation of plastic furniture production. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the jig making operation of plastic furniture production. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures. 	<p><u>Production Manager</u></p> <ol style="list-style-type: none"> 1) Plan, implement and control the mould making operation of plastic furniture production. 2) Review and adjust the schedule where needed. 3) Determine the human resources and material resources required. 4) Manage human and material resources to meet production targets. 5) Make decisions about equipment use, maintenance and procurement. 6) Work out and implement standard operating procedures for production operations and ensure that SOP are adhered to. 7) Ensure implementation and adherence to health and safety procedures.

AREA	Plastic Furniture Manufacturing (Injection Moulding)	Plastic Furniture Manufacturing (Jig Making)	Plastic Furniture Manufacturing (Mould Making)
	8) Set and monitor furniture product quality standards. 9) Implement and enforce quality control to meet quality objectives. 10) Determine and implement improvements to the plastic furniture production process. 11) Monitor and review the performance of staff and organize necessary training program for improvement.	8) Set and monitor furniture product quality standards. 9) Implement and enforce quality control to meet quality objectives. 10) Determine and implement improvements to the plastic furniture production process. 11) Monitor and review the performance of staff and organize necessary training program for improvement.	8) Set and monitor furniture product quality standards. 9) Implement and enforce quality control to meet quality objectives. 10) Determine and implement improvements to the plastic furniture production process. 11) Monitor and review the performance of staff and organize necessary training program for improvement.
LEVEL 4	<u>Production Executive</u> 1) Monitor the injection moulding operation for plastic furniture production team in order to achieve production target. 2) Execute and monitor plastic furniture production activities. 3) Implement the production quality system. 4) Ensure all machineries s and equipment are in good conditions and properly maintained. 5) Evaluate and ensure production disciplines are followed. 6) Manage subordinates to perform the job according to SOP.	<u>Production Executive</u> 1) Monitor the jig making operation for plastic furniture production team in order to achieve production target. 2) Execute and monitor plastic furniture production activities. 3) Implement the production quality system. 4) Ensure all machineries s and equipment are in good conditions and properly maintained. 5) Evaluate and ensure production disciplines are followed. 6) Manage subordinates to perform the job according to SOP.	<u>Production Executive</u> 1) Monitor the mould making operation for plastic furniture production team in order to achieve production target. 2) Execute and monitor plastic furniture production activities. 3) Implement the production quality system. 4) Ensure all machineries s and equipment are in good conditions and properly maintained. 5) Evaluate and ensure production disciplines are followed. 6) Manage subordinates to perform the job according to SOP.

AREA	Plastic Furniture Manufacturing (Injection Moulding)	Plastic Furniture Manufacturing (Jig Making)	Plastic Furniture Manufacturing (Mould Making)
	Educate in quality and safety and handle workers' attendance and affairs.	Educate in quality and safety and handle workers' attendance and affairs.	Educate in quality and safety and handle workers' attendance and affairs.
LEVEL 3	<p><u>Injection Moulding Supervisor</u></p> <ol style="list-style-type: none"> 1) Supervise the injection moulding operation to ensure it is running according to production target and following Standard Operation Procedures (SOP). 2) Monitor and coordinate all injection moulding activities. 3) Ensure all moulding machine and equipment are in good conditions. 4) Assist Production Executive in monitoring day to day operation of production. 5) Ensure output according to set target and quality standard. 6) Perform supervision job according to SOP. 7) Educate on quality and safety and handle their attendance and affair. 8) Maintain housekeeping and safety of work area. 	<p><u>Jig Maker</u></p> <ol style="list-style-type: none"> 1) Produce fixtures and jigs prior to production as per requirement. 2) Make jigs, fixtures, and templates to be used as work aids in the fabrication of parts or products 3) Assemble a variety of standard and non-standard major jigs, fixtures and related tooling. 4) Check jigs function appropriately with complex angles or contours. 5) Conduct test runs and make adjustments as necessary. 6) Check accuracy and quality in accordance with established control procedures. 7) Reports superior on issues arise during jig making. 	<p><u>Mould Maker</u></p> <ol style="list-style-type: none"> 1) Construct moulds used for casting metal, clay or plaster objects. 2) Assemble hardened moulds and seals joints. 3) Place form around model and separately immerses each half portion of model in plaster, wax, or other mould-making material. 4) Cover portions of model with layers of modelling or casting material treated to harden when allowed to set or dry. 5) Remove excess mould material, such as plaster, wax, or rubber. 6) Smooth surfaces of mould, using scraping tool and sandpaper. 7) Cover model or pattern of object from which mould is to be made with lubricant or parting agent. 8) Bore holes or cut grates and risers in mould, using power tools.

AREA	Plastic Furniture Manufacturing (Injection Moulding)	Plastic Furniture Manufacturing (Jig Making)	Plastic Furniture Manufacturing (Mould Making)
	9) Prepare report on any abnormality occurred at injection moulding area.		9) Separate model or pattern from mould. 10) Examine mould for accuracy. 11) Perform housekeeping at work area. 12) Follow safety guidelines.
LEVEL 2	<p><u>Senior Injection Moulding Operator</u></p> <p>1) Set up and operate injection-moulding machines to cast products from thermoplastic materials.</p> <p>2) Install dies on machine, according to work order specifications, using clamps, bolts, and hand tools.</p> <p>3) Set machine controls, regulate moulding temperature, volume of plastic, moulding pressure and time, according to knowledge of plastics and moulding procedures.</p> <p>4) Mix thermoplastic materials and colouring pigments in mixing machine, according to formula.</p>	No Level	No Level

AREA	Plastic Furniture Manufacturing (Injection Moulding)	Plastic Furniture Manufacturing (Jig Making)	Plastic Furniture Manufacturing (Mould Making)
LEVEL 1	<p><u>Injection Moulding Operator</u></p> <ol style="list-style-type: none"> 1) Prepare and sort required plastic material. 2) Heat and mix the plastic material. 3) Set the injection moulding machine. 4) Inject the heated liquid plastic into the moulder and allow to cool according to time needed. 5) Open the mould and eject the moulded product. 6) Separate the usable part from left over runner. 7) Weigh the usable part and record. 8) Perform housekeeping at work area. 9) Follow safety guidelines. 	No Level	No Level

Table 4.32: List of Responsibilities for Group 310 based on Occupational Structure in Table 4.13 (18 of 18)

AREA	Plastic Furniture Manufacturing (Tooling)	Plastic Furniture Manufacturing (Research and Development)	Plastic Furniture Manufacturing (Quality Assurance)
LEVEL 8	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available
LEVEL 5	<p><u>Maintenance Manager</u></p> <ol style="list-style-type: none"> 1) Develop maintenance procedure and ensure implementation. 2) Carry out inspections of the facilities to identify and resolve issues. 3) Check electrical and hydraulic systems of buildings to ensure functionality. 4) Plan and oversee all repair and installation activities. 5) Allocate workload and supervise upkeep staff (custodians, janitors and etc.). 6) Monitor equipment inventory and place orders when necessary. 7) Monitor expenses and control the budget for maintenance. 8) Manage relationships with contractors and service providers. 	<p><u>Research and Development Manager</u></p> <ol style="list-style-type: none"> 1) Conduct research to identify new plastic furniture product in the market. 2) Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement. 3) Investigate with buyers on any product issues, complaints, withdrawals, recalls, returns, ratings and reviews. 4) Carry out an initial risk assessment of products to ensure safety, legality and quality. 5) Drive product engineering discussions with suppliers, including use of preferred component suppliers and management. 	<p><u>Quality Assurance Manager</u></p> <ol style="list-style-type: none"> 1) Formulate and set quality policies according to furniture quality standards. 2) Ensure that plastic furniture products meet standards set by both company and regulatory authorities. 3) Develop and review quality and safety policies and manage audits by third-party inspection on manufacturing facilities for compliance with standards. 4) Determine methods to resolve any quality issues that arise. 5) Review customer feedback and respond to any quality complaints. 6) Develop and manage new product testing requirements including new material application test.

AREA	Plastic Furniture Manufacturing (Tooling)	Plastic Furniture Manufacturing (Research and Development)	Plastic Furniture Manufacturing (Quality Assurance)
	9) Keep maintenance logs and report on daily activities. 10) Ensure health and safety policies are complied with.	6) Pre-screen all development samples, ensuring company requirements are met. 7) All sample stages - provide any technical comments and suggestion for product improvement. 8) Provide comprehensive product information for all aspects of new material and process in plastic furniture manufacturing.	7) Manage the disposal of non-conforming material. 8) Monitor the verification and follow-up of quality issues. 9) Inspect facilities for compliance with standards, determining methods to resolve any issues that arise. 10) Ensure Quality Awareness training is conducted for across the function and advice top management on quality improvements matters.
LEVEL 4	<u>Tooling Executive</u> 1) Interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing and communicating tooling work requirements. 2) Support production activities at all times by ensuring minimum response times to tools and machine breakdowns.	<u>Research and Development Executive</u> 1) Execute research and development activities for plastic furniture production. 2) Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement. 3) Investigate on current material and product quality issues, complaints, withdrawals, recalls, returns, ratings & reviews and etc.	<u>Quality Assurance Executive</u> 1) Implement quality policies according to furniture quality standards. 2) Verify furniture products meet standards set by both company and regulatory authorities. 3) Propose methods to resolve any quality issues that arise. 4) Obtain and assess customer feedback to any quality complaints. 5) Follow-up and verify on quality issues

AREA	Plastic Furniture Manufacturing (Tooling)	Plastic Furniture Manufacturing (Research and Development)	Plastic Furniture Manufacturing (Quality Assurance)
	<ul style="list-style-type: none"> 3) Ensure all maintenance and repair works done comply with local regulatory, corporate safety and industrial standards. 4) Keep track of spare part and inventory usage to maintain spare part/inventory control. 5) Assist Maintenance Manager in carrying out engineering evaluations/experiments/troubleshooting. 6) Participate and contribute actively in continuous improvement activities. 7) Respond to emergency calls for any troubleshooting required at site. 	<ul style="list-style-type: none"> 4) Carry out an initial risk assessment of products to ensure safety, legality and quality. 5) Organise product engineering discussions with suppliers, including use of preferred component suppliers and management. 6) Pre-screen all development samples, ensuring company requirements are met. 7) Provide any technical comments and suggestion for product improvement. 8) Provide comprehensive product information for all aspects of new material and manufacturing process. 	<ul style="list-style-type: none"> 6) Perform all incoming material and component inspection activities. 7) Coordinate the disposal of non-conforming material. 8) Inspect facilities for compliance with standards, determining methods to resolve any issues that arise. 9) Conduct Quality Awareness training production staff. 10) Propose quality improvements matters.
LEVEL 3	<p><u>Tooling Technician</u></p> <ul style="list-style-type: none"> 1) Use processes such as cutting, grinding, spotting, painting, hand finishing, shaping, bending, drilling, reaming, tapping, wiring, plumbing, lay-up, minor welding, and inspection. 2) Set-up, operate all types of fabrication and measurement equipment and machine tools required to fabricate tools. 	<p><u>Research and Development Officer</u></p> <ul style="list-style-type: none"> 1) Assist in executing research and development activities for plastic furniture production. 2) Build and maintain good working relationship with designing and production team to ensure new product developed as per requirement. 3) Check current material and product quality issues in the production. 	<p><u>Quality Inspector</u></p> <ul style="list-style-type: none"> 1) Perform incoming material quality inspection. 2) Perform in process quality inspection. 3) Perform finish product quality inspection. 4) Record all production and manufacturing quality issues. 5) Assess quality performance and report to management.

AREA	Plastic Furniture Manufacturing (Tooling)	Plastic Furniture Manufacturing (Research and Development)	Plastic Furniture Manufacturing (Quality Assurance)
	<ul style="list-style-type: none"> 3) Use and/or interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing and communicating work requirements. 4) Supervise and coordinate with contractors and vendors on works for maintenance and repair related to tools and equipment. 5) Provide simple report on breakdown history and ensure action follow up to prevent recurrence of tool breakdowns. 6) Support the Tooling Executive in the identification and procurement of parts required for maintenance and repair. 7) Keep track of spare part and inventory usage to maintain spare part/inventory control. 	<ul style="list-style-type: none"> 4) All sample stages - provide any technical comments and suggestion for product improvement. 5) Prepare product information for all aspects of new material, process or product. 6) Prepare report on any abnormality occurred. 	<ul style="list-style-type: none"> 6) Perform quality inspection job according to SOP educate on quality and safety and handling their attendance and affair. 7) Maintain housekeeping and safety of work area. 8) Prepare Quality inspection report on any abnormality occurred

AREA	Plastic Furniture Manufacturing (Tooling)	Plastic Furniture Manufacturing (Research and Development)	Plastic Furniture Manufacturing (Quality Assurance)
LEVEL 2	<p><u>Tooling Operator</u></p> <ol style="list-style-type: none"> 1) Inspect machine moulding machine and other equipment operation conditions. 2) Oversee the technical and production aspects of all equipment. 3) Perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring and work-holding issues, and material issues to new operators. 4) Work with tooling technician on tooling issues. 5) Report to higher management on production issues. 6) Ensure housekeeping at work area and comply with safety guidelines. 	No Level	No Level
LEVEL 1	No Level	No Level	No Level

4.6 Mapping OS versus NOSS Available

This section provides the mapping between OS and current available NOSS. A total of 8 available NOSS are identified and mapped onto the proposed OS. However, 4 of the identified NOSS, which are RB-050-2:2012 Furniture Production Operation, RB-050-3:2012 Furniture Production Operation, RB-053-4:2014 Furniture Production Operation and RB-053-5:2014 Furniture Production Management, can be mapped onto more than 1 job areas in the OS. Details of the mapping are depicted in Table 4.33 to Table 4.35 respectively.

Table 4.33: Mapping OS versus NOSS Available (1 of 3)

SECTION	(C) MANUFACTURING					
DIVISION	(31) MANUFACTURE OF FURNITURE					
GROUP	(310) MANUFACTURE OF FURNITURE					
AREA	Wooden Furniture Manufacturing (Rough Milling)	Wooden Furniture Manufacturing (Lamination)	Wooden Furniture Manufacturing (Final Milling)	Wooden Furniture Manufacturing (Assembly)	Wooden Furniture Manufacturing (Sanding)	Wooden Furniture Manufacturing (Finishing)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	RB-053-5:2014	RB-053-5:2014	RB-053-5:2014	RB-053-5:2014	RB-053-5:2014	RB-053-5:2014
LEVEL 4	RB-053-4:2014	RB-053-4:2014	RB-053-4:2014	RB-053-4:2014	Finishing Line Executive	Finishing Line Executive
LEVEL 3	RB-050-3:2012	RB-050-3:2012	RB-050-3:2012	RB-050-3:2012	Sanding Supervisor	Senior Finishing Sprayer
LEVEL 2	RB-050-2:2012	RB-050-2:2012	RB-050-2:2012	RB-050-2:2012	Sanding Line Leader	Finishing Sprayer
LEVEL 1	Machine Operator	Lamination Operator	Machine Operator	Assembly Operator	Sanding Operator	No Level

Table 4.34: Mapping OS versus NOSS Available (2 of 3)

SECTION	(C) MANUFACTURING					
DIVISION	(31) MANUFACTURE OF FURNITURE					
GROUP	(310) MANUFACTURE OF FURNITURE					
AREA	Wooden Furniture Manufacturing (Product Development)	Wooden Furniture Manufacturing (Sample Making)	Wooden Furniture Manufacturing (Quality Assurance)	Wooden Furniture Manufacturing (Production Planning and Control)	Wooden Furniture Manufacturing (Maintenance)	Wooden Furniture Manufacturing (Tooling)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Product Development Manager	Product Development Manager	Quality Assurance Manager	Production Planning and Control Manager	Maintenance Manager	Maintenance Manager
LEVEL 4	C310-001-4:2017	Product Development Executive	Quality Assurance Executive	Production Planning and Control Executive	Maintenance Executive	Tooling Executive
LEVEL 3	Product Designer	RB-055-3:2014	Quality Inspector	Production Planning and Control Officer	Maintenance Technician	Tooling Technician
LEVEL 2	Draughtsman	RB-055-2:2014	No Level	No Level	Machinist	Grinding Operator
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level

Table 4.35: Mapping OS versus NOSS Available (3 of 3)

SECTION	(C) MANUFACTURING						
DIVISION	(31) MANUFACTURE OF FURNITURE						
GROUP	(310) MANUFACTURE OF FURNITURE						
AREA	Upholstery of Furniture (Frame Making)	Upholstery of Furniture (Construction & Assembly)	Upholstery of Furniture (Upholstering)	Upholstery of Furniture (Finishing)	Upholstery of Furniture (Maintenance)	Upholstery of Furniture (Product Development)	Upholstery of Furniture (Quality Assurance)
LEVEL 8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
LEVEL 5	Production Manager	Production Manager	Production Manager	Production Manager	Maintenance Manager	Product Development Manager	Quality Assurance Manager
LEVEL 4	Production Executive	Production Executive	Production Executive	Production Executive	Maintenance Executive	Prod Development Executive	Quality Assurance Executive
LEVEL 3	Senior Frame Maker	Senior Assembler	RB-052-3:2014	Senior Finishing Sprayer	Technician	Designer	Quality Assurance Supervisor
LEVEL 2	Frame Maker	Assembler	Upholsterer	Finishing Sprayer	No Level	Draughtsman	No Level
LEVEL 1	Material Prep Operator	Material Prep Operator	Material Prep Operator	No Level	No Level	No Level	No Level

4.7 Occupational Description (OD)

Occupational Description (OD) is a broad, general, and written statement of a specific job, based on the findings of a job analysis. It generally includes duties, purpose, responsibilities, scope, and working conditions of a job along with the job's title, and the name or designation of the person to whom the employee reports. There are 191 job titles currently found in the Manufacture of Furniture. The Occupational Description provided in Annex 6 are the 24 job titles that have been identified as critical or hard-to-fill job as suggested by industry representatives from focus group.

4.8 Conclusion

Based on the discussions with panel members during the development workshops, the OS of the industry is produced in this chapter. The OS would provide information of the competency or job areas applicable to the industry, and the skill level of the different job titles, according to the MOSQF Level Descriptors, and the available career paths.

The jobs and skills in demand, and the specific steps proposed to be taken by various parties to bridge the skills gaps are elaborated so that the parties concerned could take the necessary steps to overcome such challenges.

CHAPTER 5: DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Discussion

Based on the findings obtained throughout the Occupational Analysis on the industry, job areas have been identified and confirmed to be in tandem with 2-digit MSIC 2018 Division 31: Manufacture of furniture. A total of 48 job areas, which consist of 191 job titles, 23 critical jobs and 2 jobs that are related to Industry 4.0 have been identified from this study. From the 191 job titles, 17 jobs are categorised as low-skilled workers, 81 jobs as semi-skilled workers and 45 jobs as skilled workers.

The job titles identified require a holistic view in development of standard, skills training and also certification for recognition. If the competency requirements documented in NOSS format, the personnel in these areas will obtain a more structured skills training and will also enable personnel who are experienced and skilled to be certified.

The list of NOSS which are already developed under 2-digit MSIC 2018 Division 31: Manufacture of furniture is presented in Table 2.6. in Chapter 2. This study provides a more comprehensive view of the industry needs in terms of skill development and thus is able to assist in strategizing the NOSS development for other critical job areas.

5.2 Recommendation

It is hoped that the result of this OF will be used as reference to fulfil the future plans of developing skilled personnel and certifying Malaysians in this sector towards improving the quality of the local sector and thus spurring Malaysia's global competitiveness.

There are several options when addressing or mitigating workforce demand and supply. It may include establishing and maintaining partnerships with other agencies or departments, or educational institutions to increase external talent pools and also through the training of existing staff in line with new skills requirements.

Based on the above comments, specific recommendations are listed below:

- a) To continue and streamline efforts in NOSS development for areas under the sector in line with the findings of this analysis. This includes the development of the NOSS for the job areas that are in demand and have not been developed.
- b) To encourage apprenticeship training (National Dual Training System – NDTS) for the related job area.
- c) To promote certification of existing and experienced personnel in the sector through Recognition of Prior Achievement (RPA) (Pengiktirafan Pencapaian Terdahulu (PPT)).
- d) To accelerate the implementation of skills training in identified job areas to develop local talents to overcome the dependency on foreign labour, skills mismatch and insufficient manpower in the industry.
- e) To get Government’s intervention and support by reviewing current policies and initiatives to safeguard the local establishments.
- f) To promote conducive work environment for workers to relief work pressure thus, increase productivity.
- g) To encourage industry players to focus more on product diversification and innovation to keep the industry remain relevant for years to come.

5.3 Conclusion

The conclusion is based on the specified objectives of the OF as elaborated below:

Objective 1: To produce Occupational Structure (OS) for Manufacture of Furniture Industry based on MSIC 2008.

As a result of the Sector OF conducted together with expert panel members from various organisations, a total of 48 areas and 191 job titles, 24 critical job titles and 2 job titles related to Industry 4.0 have been identified. By planning and conducting the training and certification of this sector personnel in the near future, it is hoped that there will be a steady flow of local skilled and certified workers. The detailed information for the OS can be referred to Chapter 4.

Objective 2: To investigate the competency in demand in the Manufacture of Furniture Industry.

Based on the FGD and survey findings, the top five competency in demand are as follows:

- a) Product knowledge (43 per cent)
- b) Quality assurance (43 per cent)
- c) Raw material selection and procurement (41 per cent)
- d) Production operations (41 per cent)
- e) Finishing operations (41 per cent)

The detailed information for the skills in demand in this industry can be referred to Chapter 4.

Objective 3: To identify critical jobs in for the Manufacture of Furniture Industry.

The respondents and FGD panels have determined 24 critical job titles for this OF. From the 24 job titles, 17 jobs are categorised as semi-skilled workers, 7 jobs categorised as skilled workers and none of the critical job is defined under the lower skilled workers. 6 out of the total 24 critical jobs were matched with e-MASCO and COL. Details of the critical job titles are shown in Annex 4.

Objective 4: To identify jobs title related to Industry 4.0 in Manufacture of Furniture Industry.

The respondents and FGD panels have reviewed the list and specified the job titles related to Industry 4.0 in manufacture of furniture industry. Only two jobs are identified and defined under the semi-skilled and the skilled workers respectively. Details of the job titles related to Industry 4.0 are depicted in Annex 5.

Objective 5: To establish Occupational Descriptions (OD) for each job title based on latest industry OS.

The OD for all the critical job titles were obtained during the workshops and further confirmed by the members of FGD. These ODs will also serve as reference of job scope and the required competencies for NOSS development. Details of OD can be found in Annex 6.

As a conclusion, close collaboration between the stakeholders in industry need to be strengthened to address the issues raised by this study. Industry players, training institutions, government agencies and workers themselves have to play their roles effectively in order push the industry forward.

Several essential efforts need to be undertaken jointly by stakeholders from industry, especially training/academic institutions, accreditations authorities and related government agencies to ensure that the industry's requirements are addressed, which include:

- a) Identify and assess the qualifications, NOSS, and competencies associated with the identified critical job titles.
- b) Align and evaluate the existing training curriculum and training packages.
- c) Coordination among stakeholder to:
 - i) Revise or develop required curriculum and training packages to eliminate mismatch between training and industry requirements;

- ii) Expend or create new apprenticeship/ internship/ attachments schemes;
and
 - iii) Joint technology and knowledge transfer between instructor/ training entities with industry experts.
- d) Implement government's initiatives and policies that benefited the industry holistically to protect the local market.

The result of this OF research and development work shall be used as references on how to fulfil the future plans of developing skilled personnel and certifying Malaysians in the Manufacture of Furniture industry towards enhancing the products and services provided by the industry players.

REFERENCES

- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 396-402.
- Cavana, R.Y., Brian, L.D., Sekaran, U. (2001). *Applied Business Research: Qualitative and Quantitative Methods*.
- Denscombe, M. (2014). *The good research guide: for small-scale social research projects*. McGraw-Hill Education (UK).
- Department of Statistics, M. (2019, May 6). Rebasing of Malaysia's Gross Domestic Product to Base Year 2015. Retrieved from Department of Statistics Malaysia, Official Portal: https://dosm.gov.my/v1/index.php?r=column/cthemedByCat&cat=153&bul_id=SlhtdWs0UzY4M2ZyWGVRRTIXcXlrQT09&menu_id=TE5CRUZCblh4ZTZMODZlbnk2aWRRQT09
- Department of Statistics, Malaysia. (2016). *Economic Census 2011 - Profile of Small & Medium Enterprise*. Putrajaya: Department of Statistics, Malaysia. Retrieved from Department of Statistics Malaysia, Official Portal.
- Department of Statistics, Malaysia. (2017). *Economic Census 2016*. Department of Statistics, Malaysia.
- Groves, R. M., Dillman, D. A., Eltinge, J. L., & Little, R. J. (2002). *Survey nonresponse*. New York: Wiley.
- Information Technology and the U.S. Workforce: Where Are We and Where Do We Go from Here? (2017) <https://www.nap.edu/read/24649/chapter/2> [1 July 2019]
- Kline, R. B. (1998). *Principles and practices of structural equation modeling*. New York: Guilford Press.

- Malaysian Qualifications Agency. (2019, January 10). Malaysian Qualifications Framework 2nd Edition. Retrieved from The Official Portal of Malaysian Qualifications Agency: <http://www.mqa.gov.my/pv4/mqf.cfm>
- Ministry of Human Resources. (2013). MASCO Malaysia Standard Classification of Occupation 2013. Putrajaya: Ministry of Human Resources.
- Porter, B. (1993). Developing Competency Based Curriculum Modules: A Guidebook for TAFE Teachers and Curriculum Writer. Sydney, NSW TAFE Commission.
- Roscoe, J.T. (1975). Fundamental Research Statistics for the Behavioural Sciences.
- Sekaran, U., Bougie, R. (2013). Research Methods for Business: A Skill Building Approach. John Wiley & Sons.
- Sheridan, J. Coakes, L. S. (2007). SPSS Version 14.0 for Windows: Analysis without Anguish. John Wiley & Sons.
- Talent Corp., Kementerian Sumber Manusia. (2019). Critical Occupations List 2018/2019: Occupation Report. Putrajaya: Talent Corp., Kementerian Sumber Manusia.

ANNEX 1: MOSQF LEVEL DESCRIPTORS

**MALAYSIAN OCCUPATIONAL SKILLS QUALIFICATION FRAMEWORK
(MOSQF) LEVEL DESCRIPTOR**

(Source: Malaysian Qualification Agency)

LEVEL	LEVEL DESCRIPTOR
8	Achievement at this level reflects the ability to develop original understanding and extend a sub-area of knowledge or professional practice. It reflects the ability to address problematic situations that involve many complexes, interacting factors through initiating, designing and undertaking research, development or strategic activities . It involves the exercise of broad autonomy, judgement and leadership in sharing responsibility for the development of a field of work or knowledge, or for creating substantial professional or organisational change . It also reflects a critical understanding of relevant theoretical and methodological perspectives and how they affect the field of knowledge or work.
7	Achievement at this level reflects the ability to reformulate and use relevant understanding, methodologies and approaches to address problematic situations that involve many interacting factors. It includes taking responsibility for planning and developing courses of action that initiate or underpin substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an understanding of theoretical and relevant methodological perspectives, and how they affect their sub-area of study or work .
6	Achievement at this level reflects the ability to refine and use relevant understanding, methods and skills to address complex problems that have limited definition . It includes taking responsibility for planning and developing courses of action that are able to underpin substantial change or development, as well as exercising broad autonomy and judgment . It also reflects an understanding of different perspectives, approaches of schools of thought and the theories that underpin them .
5	Competent in applying a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources feature strongly, as do personal accountabilities for analysis and diagnosis, design, planning, execution and evaluation . Specialisation of technical skills should be demonstrated.

4	Competent in performing a broad range of complex technical or professional work activities carried out in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and allocation of resources is often present. Higher level of technical skills should be demonstrated.
3	Competent in performing a broad range of varied work activities , performed in a variety of context, most of which are complex and non-routine . There is considerable responsibility and autonomy and control or guidance of others is often required.
2	Competent in performing a significant range of varied work activities , performed in a variety of context. Some of the activities are non-routine and required individual responsibility and autonomy.
1	Competent in performing a range of varied work activities, most of which are routine and predictable .

ANNEX 2: LIST OF CONTRIBUTORS

**LIST OF PANEL MEMBERS FOR MANUFACTURE OF FURNITURE
FRAMEWORK DEVELOPMENT**

NO.	NAME	POSITION	ORGANISATION
1	Mahpar Bin Atan	Director	Malaysian Timber Industry Board (MTIB)
2	Mejar (K) Dato' Ajlan Bin Mohamad	Managing Director	TTITC Production Sdn. Bhd.
3	Abdul Kadir Bin Hussin	Managing Director	Homestead Wood Industries Sdn. Bhd.
4	Zairulanuar Bin Paharudin	Managing Director	Paharudin Industries Sdn. Bhd.
5	Syed Abu Bakar Bin Syed Hamzah	Managing Director	Tirai Inovatif Sdn. Bhd.
6	Burhan Bin Ashari	Managing Director	Cengal Timber Craft Sdn. Bhd.
7	Ahmad Firdaus Bin Ahmad Kamal	Chief Operation Officer	Puncak Bumi Utama Sdn. Bhd.
8	Muhammad Nazamuddin Bin Mashuri	Manager	Meranti Furniture Sdn. Bhd.
9	Nur Hurriyatul Huda Binti Abdullah Sani	Assistant Director	Department of Statistics Malaysia
10	YM Tengku Noradilah Binti Tengku Jalal	Assistant Director	Department of Statistics Malaysia
11	Akmalia Binti Hanifah	Assistant Director	Department of Statistics Malaysia

**LIST OF OCCUPATIONAL FRAMEWORK TECHNICAL EVALUATION
COMMITTEE**

NO.	NAME	POSITION	ORGANISATION
1	Dr. Mohd Nor Zamri Bin Mat Amin	Director	Malaysian Timber Industry Board (MTIB)
2	Jamaludin Bin Murad	Chief Executive Officer	Tsisit Corporation (M) Sdn. Bhd.
3	Huda Binti Ikhwan	Executive Director	One-Tech (M) Sdn. Bhd.
4	Rabi'atul'adawiah Binti Shabli	Assistant Director	Department of Statistics Malaysia
5	Mohd Asyraf Bin Adzmin	Assistant Director	Department of Statistics Malaysia

**LIST OF DEPARTMENTS OF SKILLS DEVELOPMENT (DSD) OFFICERS
INVOLVED IN OCCUPATIONAL FRAMEWORK DEVELOPMENT**

NO.	NAME	POSITION	ORGANISATION
1	Siti Fauziah Binti Jumadi	Principal Assistant Director	NOSS Division
2	JeFrizain bin Abdul Rasid	Senior Assistant Director	NOSS Division
3	Noor Azura Binti Adnan	Senior Assistant Director	NOSS Division
4	Azizah Binti Md Saleh	Senior Assistant Director	Planning, Research and Development Division
5	Syazwani Binti Azmi	Assistant Director	NOSS Division
6	Nazrul Hilmi Bin Mohammad	Assistant Director	NOSS Division
7	Zainal Bin Abd Jalil	Senior Skills Development Officer	NOSS Division

**LIST OF WORKFORCE TEAM IN OCCUPATIONAL FRAMEWORK
DEVELOPMENT**

NO.	NAME	POSITION	ORGANISATION
1	Ahmad Ramdan Bin M Yusof	Project Manager/ Facilitator/ Researcher	Edusure Sdn. Bhd.
2	Prof. Dr. Raemah Abdullah Hashim	Lead Researcher	Edusure Sdn. Bhd.
3	Saiful Anwar Bin Abu Hasan	Researcher/ Facilitator	Edusure Sdn. Bhd.
4	Nor Heideira Binti Terjudin	Assistant Researcher	Edusure Sdn. Bhd.
5	Syamimi Binti Saiful Anwar	Proofreader	Edusure Sdn. Bhd.
6	Izzuddin Fahmi Bin Basharudin	Project Coordinator	Edusure Sdn. Bhd.

ANNEX 3: QUESTIONNAIRE

Manufacture of Furniture Industry Occupational Framework Survey

Dear Sir / Madam,

Assalamualaikum w.b.t. and Selamat Sejahtera,

In collaboration with the Department of Skills Development (DSD) of the Ministry of Human Resources, through the appointment of Edusure Sdn. Bhd. is currently conducting an occupational analysis on the Manufacture of Furniture industry. The purpose of the survey is to identify occupational structures and job titles currently available in the Manufacture of Furniture industry. From the findings, it will determine whether there are occupational gaps in the career path of these personnel so that new job titles for future job prospects, or jobs in demands could be proposed in the occupational framework of the Manufacture of Furniture industry.

We would like to extend our heartfelt gratitude upon your cooperation in answering this survey. All the information given will be used for the purpose of this survey only and will be strictly kept as confidential. If you have any clarification regarding the survey, kindly contact:

Ahmad Ramdan bin M Yusof: aramdan34@gmail.com

Saiful Anwar Bin Abu Hasan: saifulanwar_ah@yahoo.com

Thank you and have a nice day!

Survey Respondent Details

Name :

Position :

Organisation :

Date :

Please answer the questions below in the space provided, additional pages may be added if necessary. There are 5 SECTIONS in this 9 PAGES survey.

DEMOGRAPHICS

Age: 20-30 31-40 40 upwards
Gender: Male Female

Position in Organisation:

- Managing Director
- General Manager
- Factory Manager
- Production Manager
- Executive
- Others, please specify: _____

Company Location: _____(state)

Size of Company: _____number of staff

SECTION 1: COMPETENCY IN DEMAND

2.1 What is your nature of business?

- Wooden Furniture Manufacturing
- Metal Furniture Manufacturing
- Plastic Furniture Manufacturing
- Upholstery Furniture Production
- Cane/Rattan/Bamboo Furniture Production
- Craft Furniture Making
- Others, please specify: _____

2.2 Listed below are set of skills related to personnel involve in Manufacture of Furniture. Rate the level of demand to the set of skills by using the scale below:

1	2	3	4
Not In Demand	Low In Demand	Moderate In Demand	High In Demand

No.	Competency	Rating Score
1	Product knowledge	
2	Product Costing	
3	Raw Material Selection & Procurement	
4	Production Operations	
5	Finishing Operations	
6	Quality Assurance	
7	General attitude towards work (commitment, resourcefulness, teamwork, etc.)	
8	Competent in using computerized / other mechanical devices	
9	Troubleshooting / problem solving skills	
10	Strong technical aptitude	
11	Communication skills	
12	English language competency	
13	Technoprenuer skills	

SECTION 2: JOBS IN DEMAND

3.1 Listed below are job areas and description of category of skills. Based on your observation, which job area is experiencing **shortage of manpower in Manufacture of Furniture?**

Tick (✓) where applicable.

Category of Skills	Description
Skilled Workers	Managers, Professionals, Technicians and Associate Professionals
Semi-Skilled Workers	Clerical Support, Service and Sales, Craft and related Trades Workers and Plant and Machine Operators and Assemblers
Low Skilled Workers	General Workers

No.	Job Areas & Category of Skills	High Shortage	Mid Shortage	Low Shortage	No Shortage
1	Wood Furniture Manufacturing				
	a) Skilled Workers				
	b) Semi-Skilled Workers				
	c) Low Skilled Workers				
2	Metal Furniture Manufacturing				
	a) Skilled Workers				
	b) Semi-Skilled Workers				
	c) Low Skilled Workers				
3	Upholstery Furniture Manufacturing				
	a) Skilled Workers				
	b) Semi-Skilled Workers				
	c) Low Skilled Workers				
4	Other Furniture Manufacturing				
	a) Skilled Workers				
	b) Semi-Skilled Workers				
	c) Low Skilled Workers				

SECTION 3: EMERGING SKILLS

(Note: Emerging Skills are skills that are predicted to be imperative to the industry in the near future based on recent development, trend or study)

4.1 Do you think Industry 4.0 (I4.0) would give an impact to the economic activities of manufacture of furniture?

- Yes
 No
 Not sure

4.2 Listed below are the nine (9) technology drives/pillars of I4.0. Which job area is likely to be affected by these 9 technology drives/pillars of I4.0?

Rate the level of demand to the set of skills by using the scale below:

1	2	3	4
Not In Demand	Low In Demand	Moderate In Demand	High In Demand

NO.	TECHNOLOGY DRIVES / PILLARS	JOB AREAS			
		Wood Furniture Manufacturing	Metal Furniture Manufacturing	Upholster Manufacturing	Other Furniture Manufacturing
1	Autonomous Robots (coordinated and automated actions of robots to complete tasks intelligently, with minimal human input)				
2	Big Data Analytics (the analysis of ever larger volumes of data. Circulation, collection, and analysis of information is a necessity because it supports productivity growth based on a real-time decision-making process)				
3	Cloud Computing (storing and accessing data and programs over the Internet instead of your computer's hard drive)				
4	Internet of Things (IoT) (all machines and systems connected to the production plant (as well as other systems) must be able to collect,				

	exchange and save these massive volumes of information, in a completely autonomous way and without the need of human intervention)				
5	Additive Manufacturing (3D Printing) (use in prototyping, design iteration and small scale production and often described as “rapid prototyping” - produce the desired components faster, more flexibly and more precisely than ever before)				
6	System Integration (the process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole via Internet of Things-IoT)				
7	Cybersecurity (with the increased connectivity and use of standard communications protocols, the need to protect critical industrial systems and manufacturing lines from cybersecurity threats is increasing)				
8	Augmented Reality (Augmented-reality-based systems support a variety of services, such as selecting parts in a warehouse and sending repair instructions over mobile devices - provide workers with real-time information to improve decision making and work procedures)				
9	Simulation (Simulations will leverage real-time data to mirror the physical world in a virtual model, which can include machines, products, and humans. This allows operators to test and optimize the machine settings for the next product in line in the virtual world before the physical changeover, thereby driving down machine setup times and increasing quality)				

SECTION 4: RELATED ISSUES

5.1 What is/are the key issue/s related to Manufacture of Furniture industry?

Please rate **ALL** the key issues by using the scale below.

1	2	3	4
Strongly Disagree	Disagree	Agree	Strongly Agree

NO.	KEY ISSUES	JOB AREAS			
		Wooden Furniture Manufacturing	Metal Furniture Manufacturing	Upholstery Furniture Manufacturing	Other Furniture Manufacturing
1	Insufficient manpower				
2	Low skilled and low performance workforce				
3	High dependency on foreign labour				
4	Underpayment of wages lead to high turn over				
5	Product quality inconsistency				
6	Inconsistency in materials supply and price				
7	Economic conditions				
8	Government policy/regulation				
9	Labour costs (wages)				
11	Technological change				

***End of Que

ANNEX 4: LIST OF CRITICAL JOB TITLES

LIST OF CRITICAL JOB TITLES

No	Critical Job Title	Group/Area	Level	LS	SS	S
1	CNC Machinist	Wooden Furniture Manufacturing (Final Milling)	2		√	
2	Senior Finishing Sprayer	Wooden Furniture Manufacturing (Finishing)	3		√	
3	Product Development Manager	Wooden Furniture Manufacturing (Product Development)	5			√
4	Product Development Executive	Wooden Furniture Manufacturing (Product Development)	4			√
5	Product Designer	Wooden Furniture Manufacturing (Product Development)	3		√	
6	Quality Assurance Manager	Wooden Furniture Manufacturing (Quality Assurance)	5			√
7	Quality Assurance Executive	Wooden Furniture Manufacturing (Quality Assurance)	4			√
8	PPC Officer	Wooden Furniture Manufacturing (Production Planning and Control)	3		√	
9	Maintenance Executive	Wooden Furniture Manufacturing (Maintenance)	4			√

No	Critical Job Title	Group/Area	Level	LS	SS	S
10	Maintenance Technician	Wooden Furniture Manufacturing (Maintenance)	3		√	
11	Machinist	Wooden Furniture Manufacturing (Maintenance)	2		√	
12	Tooling Executive	Wooden Furniture Manufacturing (Tooling)	4			√
13	Tooling Technician	Wooden Furniture Manufacturing (Tooling)	3		√	
14	Grinding Operator	Wooden Furniture Manufacturing (Tooling)	2		√	
15	Senior Cane Weaver	Cane Furniture Manufacturing (Cane Weaving)	3		√	
16	Fabrication Supervisor	Metal Furniture Manufacturing (Fabrication)	3		√	
17	Senior Fabrication Operator	Metal Furniture Manufacturing (Fabrication)	2		√	
18	Senior CNC Machinist	Metal Furniture Manufacturing (CNC Machining)	3		√	
19	CNC Machinist	Metal Furniture Manufacturing (CNC Machining)	2		√	

No	Critical Job Title	Group/Area	Level	LS	SS	S
20	Machinist	Metal Furniture Manufacturing (Powder Coating)	3		√	
21	Tooling Technician	Plastic Furniture Manufacturing (Tooling)	3		√	
22	Tooling Operator	Plastic Furniture Manufacturing (Tooling)	2		√	
23	Research and Development Executive	Plastic Furniture Manufacturing (Research and Development)	4			√
24	Research and Development Officer	Plastic Furniture Manufacturing (Research and Development)	3		√	
Total				0	17	7

Note: **LS** = Lower-Skilled Workers

SS = Semi-Skilled Workers

S = Skilled Workers

**ANNEX 5: LIST OF JOB TITLES RELATED TO
INDUSTRY 4.0**

LIST OF JOB TITLES RELATED TO INDUSTRY 4.0

No	Job Title Related to Industry 4.0	Group/Area	Level	LS	SS	S
1	Senior CNC Machinist	Wooden Furniture Manufacturing (Final Milling)	3		√	
2	Production Planning and Control Executive	Wooden Furniture Manufacturing (Production Planning and Control)	4			√
Total				0	1	1

Note: **LS** = Lower-Skilled Workers

SS = Semi-Skilled Workers

S = Skilled Workers

ANNEX 6: OCCUPATIONAL DESCRIPTION (OD)

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Final Milling)
JOB TITLE : CNC Machinist
LEVEL : 2

RESPONSIBILITIES

CNC Machinist is responsible to prepare and operate CNC machines to perform tasks such as boring, shaping, profiling and etc. The person also needs to monitor the operation of machine and makes any necessary adjustments to produce a better result.

Knowledge:

- Operating System.
- CAD-CAM.
- Material Properties.
- Tooling requirement.
- Basic electrical system.
- Basic mechanical system.

Skills:

- Interpret specifications of the task at hand and the desired result by reading blueprints, mechanical drawings and etc.
- Translate instructions into computer commands so the machines can perform the correct function.
- Prepare and load raw materials and parts onto the machines.
- Prepare a test run to check if the machines produce outputs according to specifications.
- Set machines to complete full cycles to fabricate large number of parts.
- Report to superior on production issues.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Creativity and innovative.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Finishing)
JOB TITLE : Senior Finishing Sprayer
LEVEL : 3

RESPONSIBILITIES

Senior Finishing Sprayer is responsible to perform finishing operation by using finishing technology, finishing systems and chemicals preparation. The person also needs to monitor day to day finishing process to ensure output is according to set finishing quality standard or requirement.

Knowledge:

- Finishing materials composition.
- Furniture finishing system.
- Finishing Quality and defects.
- Material Safety.
- Good finishing environment- dust free, humidity.

Skills:

- Interpret furniture specification on finishing requirement.
- Check finishing ingredients is mixed to obtain desired colours or shades.
- Select appropriate finishing ingredients such as paint, stain, lacquer, shellac, or varnish, depending on factors such as wood hardness and surface type.
- Check surface smoothness and ensure they are being sanded using proper abrasive material or sandpaper to prepare them for finishing.
- Inspect all finishing equipment such as spray gun and spray booth.
- Check finishing chemicals are being prepared according to mixing specification.
- Perform spraying as per specified requirement.
- Perform supervision and controlling job according to SOP.
- Brief operators on quality and safety standards.
- Maintain housekeeping and safety of work area.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Product Development)
JOB TITLE : Product Development Manager
LEVEL : 5

RESPONSIBILITIES

Product Development Manager is responsible to conduct market research to identify new furniture product and market opportunities. The person also needs to provide any technical comments and suggestion for product improvement and provide comprehensive product information for all aspects of new product launches.

Knowledge:

- Latest market trend.
- Current furniture production technology.
- New materials in the market.

Skills:

- Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement.
- Review packaging, assembly instructions and care labels of new products.
- Investigate with buyers on any product issues, complaints, withdrawals, recalls, returns, ratings and reviews.
- Organise new product evaluation meeting.
- Carry out an initial assessment of products to ensure safety, legality and quality.
- Organise product engineering discussions with suppliers, including use of preferred component suppliers and management.
- Pre-screen all development samples, ensuring company requirements are met.
- Communicate features and benefits in support of go to market strategy.
- Develop competitive comparisons in support of marketing and training initiatives.
- Provide awareness and understanding of applications and use cases for product category.
- Support marketing promotion and provide training on new products features and advantages.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Product Development)
JOB TITLE : Product Development Executive
LEVEL : 4

RESPONSIBILITIES

Product Development Executive is responsible to plan, execute and monitor furniture product development activities. The person also needs to monitor the entire product development activities and administer furniture designing and sample making team to achieve target according to timeframe requirement.

Knowledge:

- Furniture trends and design aspects.
- Materials properties and availability.
- Basic furniture production and machining capabilities.
- Material specifications.
- Product costing.

Skills:

- Update furniture's current market trend and needs.
- Prepare target in new product development with optimum material usage.
- Prepare bill of material and costing on new products.
- Set quality level requirements for a new product.
- Develop company's product catalogue.
- Present new products to marketing team prior to product marketing and promotion.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Product Development)
JOB TITLE : Product Designer
LEVEL : 3

RESPONSIBILITIES

Product Designer is responsible to design and prepare detailed drawings of jigs, fixtures, forms, or tools required to be used in production. The person also needs to Plan modifications for completed furniture to conform to changes in design trends and increase customer acceptance and prepare blueprints containing manufacturing specifications, such as dimensions, kind of wood, and upholstery fabrics to be used in manufacturing furniture.

Knowledge:

- Furniture trends and design aspects.
- Basic materials properties.
- Basic furniture production and machining capabilities.
- Material and Product Specifications.
- Tools, bits and jigs for furniture making.

Skills:

- Determine current design requirement and prepare itemized production requirements to produce furniture item.
- Build construction of models or prototypes.
- Identify potential operational issues and redesign products to improve functionality.
- Ensure final designs comply with regulations and quality standards.
- Create manuals that describe existing products' operation, features and maintenance.
- Identify potential operational issues and redesign products to improve functionality.
- Ensure final designs comply with regulations and quality standards.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Quality Assurance)
JOB TITLE : Quality Assurance Manager
LEVEL : 5

RESPONSIBILITIES

Quality Assurance Manager is responsible to Formulate and set quality policies according to furniture quality standards. The person also needs to develop and review quality and safety policies and manage audits by third-party inspection on manufacturing facilities for compliance with standards. Additionally, the person also monitors the verification and follow-up of quality issues occurring at the production line and customer sites, ensuring all open Non-Conforming issues can be closed in a timely manner.

Knowledge:

- Excellent knowledge of furniture quality requirements.
- Quality Management System.
- Production engineering.

Skills:

- Ensure that furniture products meet standards set by both their companies and regulatory authorities.
- Determine methods to resolve any quality issues that arise.
- Review customer feedback and respond to any quality complaints.
- Manage all incoming material and component inspection activities, and develop and manage new product testing requirements including new material application test.
- Manage the disposal of non-conforming material, components and products.
- Inspect facilities for compliance with standards, determining methods to resolve any issues that arise.
- Ensure Quality Awareness training is conducted across the function.
- Advise top management on quality improvements matters.
- Review budget for efficient Quality Assurance programs.
- Participate in annual internal audit as internal auditor to ensure that quality management system effectiveness is up to Malaysia and international quality standard requirements.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team
- An excellent production planner is well-versed in production procedures and ways to optimise them.
- Well organised and results-driven.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing
JOB TITLE : Quality Assurance Executive
LEVEL : 4

RESPONSIBILITIES

Quality Assurance Executive is responsible to implement quality policies according to furniture quality standards in their establishments. The person also needs to verify furniture products meet the standards set by both company and regulatory authorities.

Knowledge:

- Quality System Management.
- Quality Standards.
- Wood Properties.
- Wood Natural and Machining defects.

Skills:

- Propose methods to resolve any quality issues that arise.
- Obtain and assess customer feedback to any quality complaints.
- Follow-up and verify on quality issues.
- Perform all incoming material and component inspection activities.
- Coordinate the disposal of non-conforming material.
- Inspect facilities for compliance with standards, determining methods to resolve any issues that arise.
- Conduct Quality Awareness training for production staff.
- Propose quality improvements matters.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Commitment and integrity.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Production Planning and Control)
JOB TITLE : Production Planning and Control Officer
LEVEL : 3

RESPONSIBILITIES

Production Planning and Control Officer is responsible to plan and prioritise operations to ensure maximum production output and monitor job progress to ensure the jobs will finish on time and within schedule.

Knowledge:

- Good knowledge of production planning and quality control principles.
- Manufacturing resource planning.
- Working knowledge latest software and ERP systems.
- Good at mathematics and statistics.

Skills:

- Assess current production and machine capacity.
- Determine manpower, equipment and raw materials needed to cover furniture production demand.
- Prepare production planning schedule.
- Schedule shift according to production needs.
- Propose improvement on productivity and efficiency.
- Address issues when they arise aiming for minimum disruption.
- Collaborate with quality control, warehouse and other staff.

Attributes (Attitude/Safety/Environmental):

- Good in human relation.
- Good production planner.
- Organized and results-driven.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing
JOB TITLE : Maintenance Executive
LEVEL : 4

RESPONSIBILITIES

Maintenance Executive is responsible to monitor buildings and mechanical systems to ensure they are consistent with health and safety standards. The person also needs to develop general upkeep procedures and other tasks as assigned by the superior.

Knowledge:

- Factory Maintenance Management
- M&E Engineering
- Machine Operation Manual
- Wood Properties

Skills:

- Monitor maintenance of electrical systems
- Monitor setup of ventilation, refrigeration and other systems and repair work.
- Monitor heating and plumbing systems to ensure functionality.
- Monitor alarm systems (fire, protection) and schedule repairs when needed.
- Ensure pest control activities such as spraying insecticide carried out regularly.
- Assist in maintenance budget preparation and ensure it is followed.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Commitment and integrity.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Maintenance)
JOB TITLE : Maintenance Technician
LEVEL : 3

RESPONSIBILITIES

Maintenance Technician is responsible to perform maintenance of electrical systems such as replacing light bulbs and sockets, cleaning and repairing circuit breaker panels. The person also needs to assist maintenance executive in carrying out engineering evaluations/experiments/ troubleshooting and maintaining good housekeeping and safety practices in the production and working areas.

Knowledge:

- Engineering drawing interpretation.
- Safety standards.
- Machine and equipment manual.
- CAD/CAM.

Skills:

- Inspect building infrastructures, machines, electrical systems and factory premises.
- Provide simple report on breakdown history and ensure action follow up to prevent recurrence of tool breakdowns.
- Repair mechanical systems to ensure they are consistent with health and safety standards.
- Assist in the setup of ventilation, refrigeration and other systems and conduct repairs when necessary.
- Maintain heating and plumbing systems to ensure functionality.
- Inspect alarm systems (fire, protection) and schedule repairs when needed.
- Perform manual repairs when necessary such as fix locks and replace windows and etc.
- Undertake activities of pest control such as spraying insecticide.
- Perform other responsibilities as assigned by superior or Management from time to time.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Maintenance)
JOB TITLE : Machinist
LEVEL : 2

Responsibilities may include:

Machinist is responsible to oversee the technical and production aspects of all CNC equipment. The person also needs to perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring & work-holding issues, and material issues.

Knowledge

- Basic wood property
- Wood defects
- Machining defects

Skills

- Inspect machine operation conditions.
- Work with tooling technician on tooling issues.
- Report to higher management on production issues
- Perform housekeeping of work area.
- Follow safety guidelines.
- Correct feeding of material to machine using jigs.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Tooling)
JOB TITLE : Tooling Executive
LEVEL : 4

RESPONSIBILITIES

Tooling Executive is responsible to support production activities at all times by ensuring minimum response times to tools and machine breakdowns. The person also needs to ensure all maintenance and repair works done are complied with local regulatory, corporate safety, company requirements and industrial standards.

Knowledge:

- Engineering drawing interpretation.
- Safety standards.
- CAD/CAM.

Skills:

- Interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing and communicating tooling work requirements.
- Keep track of spare part and inventory usage to maintain spare part/inventory control.
- Assist Maintenance Manager in carrying out engineering evaluations/experiments/troubleshooting.
- Participate and contribute actively in continuous improvement activities.
- Respond to emergency calls for any troubleshooting required at site.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Tooling)
JOB TITLE : Tooling Technician
LEVEL : 3

Responsibilities may include:

Tooling Technician is responsible to operate all types of fabrication and measurement equipment and machine tools required to fabricate tools. The person also needs to supervise and coordinate with contractors and vendors on works for maintenance and repair related to tools and equipment.

Knowledge

- Engineering drawing interpretation
- Safety standards
- Tools and equipment
- CAD/CAM

Skills

- Interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing and communicating work requirements.
- Provide simple report on breakdown history and ensure action follow up to prevent recurrence of tool breakdowns.
- Support the tooling executive in the identification and procurement of parts required for maintenance and repair.
- Keep track of spare part and inventory usage to maintain spare part/inventory control.
- Provide feedback and give suggestions to improve tools/equipment stability and performance.
- Maintain good housekeeping and safety practices in the production and working areas.
- Perform other responsibilities as assigned by superior or Management from time to time.

Attributes(Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Wooden Furniture Manufacturing (Tooling)
JOB TITLE : Grinding Operator
LEVEL : 2

RESPONSIBILITIES

Grinding Operator is responsible to operate all types of fabrication and measurement equipment and machine tools required to fabricate machine cutting tools.

Knowledge:

- Tool and equipment manual
- Equipment type and functions
- Tools type and functions
- Basic troubleshooting

Skills:

- Interpret engineering drawing.
- Interpret machine manual.
- Use processes such as cutting, grinding, spotting, painting, hand finish, shaping, bending, drilling, reaming, tapping, wiring, plumbing, lay-up, minor welding, inspection, set-up.
- Use tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing work requirements.
- Perform work area housekeeping.

Attributes (Attitude/Safety/Environmental):

- Complete job on time.
- Non-disclosure of the company's confidential information.
- High level of dedication.
- Commitment and integrity while performing tasks.

MSIC GROUP : 310
AREA : Cane Furniture Manufacturing (Weaving)
JOB TITLE : Senior Cane Weaver
LEVEL : 3

RESPONSIBILITIES

Senior Cane Weaver is responsible to produce cane furniture using weaving technique according to furniture design and specifications.

Knowledge:

- Type of cane and working properties
- Basic cane furniture design
- Various wicker design
- Weaving technique

Skills:

- Interpret wicker design and specification.
- Select material for cane weaving or wicker making process.
- Weave stripe of cane in standard pattern to form furniture parts such as chair seat and chair back.
- Cut cane strips to length using cutting tools.
- Clamp smaller furniture parts pieces to hold frame.
- Interlace cane strips through frame holes into horizontal, vertical and diagonal direction to form hand woven pattern.
- Inspect the woven pattern to ensure it gets a desired tension.
- Send finish wicker for sanding and lacquering.
- Ensure housekeeping of work area and safety guidelines are followed.

Attributes (Attitude/Safety/Environmental):

- High degree of workmanship
- Complete job on time.
- Non-disclosure of the company's confidential information.
- Commitment and integrity while performing assigned tasks.

MSIC GROUP : 310
AREA : Metal Furniture Manufacturing (Fabrication)
JOB TITLE : Fabrication Supervisor
LEVEL : 3

RESPONSIBILITIES

Fabrication supervisor is responsible to supervise day to day fabrication works. The person also needs to ensure fabrication output is according to set target and quality standard.

Knowledge:

- Production Supervision
- Fabrication Machine Manual
- Tools type and functions
- Basic troubleshooting

Skills:

- Determine machine setup, production methods, and sequence of operation.
- Set up and operate metal fabricating machines according to specifications.
- Monitor all fabricating machines and equipment are in good conditions.
- Educate on quality and safety and handling their attendance and affair.
- Maintain housekeeping and safety of work area.
- Prepare report on any metal fabrication abnormality occurred.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Creativity and innovative.

MSIC GROUP : 310
AREA : Metal Furniture Manufacturing (Fabrication)
JOB TITLE : Senior Fabrication Operator
LEVEL : 2

RESPONSIBILITIES

Senior Fabrication Operator is responsible to select material for metal furniture making process. The person also needs to determine machine setup, production methods and sequence of operation.

Knowledge:

- Fabrication Machine Manual
- Tools type and functions
- Basic troubleshooting

Skills:

- Interpret specifications, and work order to determine machine setup, production methods, and sequence of operation.
- Select, position and secure dies, blades, cutters, and fixtures onto machine, using rule, square, shims, templates, hand tools, and built-in gauge.
- Position and clamp stops, guides, and turntables.
- Adjust controls to set and regulate pressure and speed.
- Locate and mark bending or cutting lines and reference points on workpiece.
- Position workpiece against stops and guides or aligns layout marks with dies or cutting blades.
- Start machine and observe machine operation to reposition workpiece.
- Inspect or measure work, using rule, gauges, and templates.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Creativity and innovative.

MSIC GROUP : 310
AREA : Metal Furniture Manufacturing (CNC Machining)
JOB TITLE : Senior CNC Machinist
LEVEL : 3

Responsibilities may include:

Senior CNC Machinist is responsible to oversee the technical and production aspects of all machines and equipment at the CNC Machining section. The person also needs to perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring and work-holding issues, and material issues.

Knowledge:

- Nesting/Optimization software.
- Computer programming.
- Tooling selection and specification.

Skills:

- Perform training to new operators.
- Oversee production and drive improvement to existing processes.
- Implement new products, tooling, programming and inspection.
- Implement new capital equipment-installation, training, initial start-up, production ramp.
- Work with vendors on material/tooling issues.
- Perform supervision job according to SOP.
- Maintain housekeeping and safety of work area.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Metal Furniture Manufacturing (CNC Machining)
JOB TITLE : CNC Machinist
LEVEL : 2

RESPONSIBILITIES

CNC Machinist is responsible to prepare and operate CNC machines to perform tasks such as drilling, grinding and milling. The person also needs to monitor the machine operations and make any necessary adjustments to produce a better result.

Knowledge:

- Operating System.
- CAD-CAM.
- Material Properties.
- Tooling requirement.
- Basic electrical system.
- Basic mechanical system.

Skills:

- Interpret specifications of the task at hand and the desired result by reading blueprints, mechanical drawings and etc.
- Translate instructions into computer commands so the machines can perform the correct function.
- Prepare and load raw materials and parts onto the machines.
- Prepare a test run to check if the machines produce outputs according to specifications.
- Set machines to complete full cycles to fabricate large number of parts.
- Report to superior on production issues.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Creativity and innovative.

MSIC GROUP : 310
AREA : Metal Furniture Manufacturing (Powder Coating)
JOB TITLE : Machinist
LEVEL : 3

RESPONSIBILITIES

Machinist is responsible to oversee the technical and production aspects of all CNC equipment at powder coating line. The person also needs to ensure all equipment are in good conditions.

Knowledge:

- Powder Coating Line System
- CAD-CAM Operating System.
- Finishing Material Properties.
- Basic Mechanical Engineering.

Skills:

- Perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring and work-holding issues, and material issues.
- Oversee production and drive improvement to exiting processes.
- Implement new products, tooling, programming and inspection.
- Work with vendors on material on tooling issues.
- Report to superior on production issues.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Plastic Furniture Manufacturing
(Tooling)
JOB TITLE : Tooling Technician
LEVEL : 3

RESPONSIBILITIES

Tooling Technician is responsible to operate all types of fabrication and measurement equipment and machine tools required to fabricate tools. The person also needs to supervise and coordinate with contractors and vendors on works for maintenance and repair related to tools and equipment.

Knowledge

- Engineering drawing interpretation
- Safety standards
- Tools and equipment
- CAD/CAM

Skills

- Interpret tool and engineering drawings and models, sketches, templates, tool design manuals, verbal information, master tools, production parts, digital data and various handbooks in accomplishing and communicating work requirements.
- Provide simple report on breakdown history and ensure action follow up to prevent recurrence of tool breakdowns.
- Support the tooling executive in the identification and procurement of parts required for maintenance and repair.
- Keep track of spare part and inventory usage to maintain spare part/inventory control.
- Provide feedback and give suggestions to improve tools/equipment stability and performance.
- Maintain good housekeeping and safety practices in the production and working areas.
- Perform other responsibilities as assigned by superior or Management from time to time.

Attributes (Attitude/Safety/Environmental):

- Good team player and able to work together with all levels of the cross-functional team.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.

MSIC GROUP : 310
AREA : Plastic Furniture Manufacturing (Tooling)
JOB TITLE : Tooling Operator
LEVEL : 2

RESPONSIBILITIES

Tooling Operator is responsible to perform troubleshooting of all machines including electro-mechanical problems, tooling issues, featuring & work-holding issues, and material issues.

Knowledge:

- Tool and equipment manual
- Equipment type and functions
- Tools type and functions
- Basic troubleshooting

Skills:

- Check moulding machine and other equipment operation's conditions.
- Check the technical and production aspects of all equipment.
- Work with tooling technician on tooling issues.
- Report to higher management on production issues.
- Ensure housekeeping at work area and complying with safety guidelines.

Attributes (Attitude/Safety/Environmental):

- Complete job on time.
- Non-disclosure of the company's confidential information.
- High level of dedication.
- Commitment and integrity while performing assigned tasks.

MSIC GROUP : 310
AREA : Plastic Furniture Manufacturing
JOB TITLE : Research and Development Executive
LEVEL : 4

RESPONSIBILITIES

Research and Development Executive is responsible to execute research and development activities for plastic furniture production. The person also needs to provide any technical comments and suggestion for product improvement and provide comprehensive product information for all aspects of new material and latest manufacturing process in plastic furniture manufacturing.

Knowledge:

- Research and Development System Management
- Latest Research and Development Technique
- Plastic Types, Properties and Performance

Skills:

- Build and maintain good working relationship with suppliers, designing and production team to ensure new product developed as per requirement.
- Investigate current material and product quality issues, complaints, withdrawals, recalls, returns, ratings and reviews and etc.
- Carry out an initial risk assessment of products to ensure safety, legality and quality.
- Drive product engineering discussions with suppliers, including use of preferred component suppliers and management pre-screen all development samples, ensuring company requirements are met.

Attributes (Attitude/Safety/Environmental):

- Meticulous in research work.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Commitment and integrity while performing assigned tasks.

MSIC GROUP : 310
AREA : Plastic Furniture Manufacturing
JOB TITLE : Research and Development Officer
LEVEL : 3

RESPONSIBILITIES

Research and Development Officer is responsible to assist in executing research and development activities for plastic furniture production. The person also needs to provide any technical comments and suggestion for product improvement.

Knowledge:

- Research and Development System Management
- Latest Research and Development Technique
- Plastic Types, and Properties and Performance

Skills:

- Build and maintain good working relationship with designing and production team to ensure new product developed as per requirement.
- Check current material and product quality issues in the production.
- Prepare product information for all aspects of new material, process or product.
- Prepare Research and Development status report.

Attributes (Attitude/Safety/Environmental):

- Meticulous in research work.
- Non-disclosure of the company's confidential information.
- High level of dedication and responsibility.
- Commitment and integrity while performing assigned tasks.