

MINISTRY OF MANPOWER

TECHNICAL NOTES

For

Safety Orientation Course

(Tunneling)

for

Workers

PART II

Version 1.0

14 October 2014

Workplace Safety and Health Council, Ministry of Manpower, Singapore (MOM)
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Version History

Version	Effective Date	Changes	Author
1.0	14 October 2014	MOM Technical Notes (First issue)	ICB, WSH Council Office

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1 AIM OF THE MOM TECHNICAL NOTES

1.1 The MOM Technical Notes is a document listing the requirements expected of the Learning Service Providers (LSPs), the facilitators, course and facilities suitable for the conduct of the WSH course. It also aims to help facilitate LSPs learning process, deliver effective training and conduct competency-based training and assessment.

1.2 The main part of this document contains key information on the **Safety Orientation Course (Tunnelling) for Workers**, including the course aim, learning objectives, target audience, assumed skills and knowledge, course syllabus, course duration, class size, and facilitator/learner ratio. It also sets forth guidelines for training delivery and assessment for the course.

1.3 This MOM Technical Notes shall be reviewed on a regular basis and or whenever it is deemed necessary due to changes in MOM policy and or requirements, training syllabus and or industrial requirements.

2 MOM TECHNICAL NOTES

2.1 LSP Criteria:

- 1 full time Principal/Manager
- 1 full time facilitator & 1 associate facilitator
- 2 facilitators per language per course
- bizSAFE Level 3
- Paid up Capital \$5k / \$50K (SOCs)
- ACTA or DACE
- Advanced Certificate in WSH: Worker Courses
- Specialist Diploma in WSH: Supervisor and above courses
- 5 years of relevant industry experience
- Any other course specific requirement/s

2.2 LSP Facilities:

- Conduciveness of training facilities
- Safe
- Noise
- Lighting
- Sanitary
- Projection
- Tables/Chairs
- Ventilation
- No training in containers

2.3 Safety Orientation Course (Tunnelling) Theory Assessment:

- 15 minutes - MCQ assessment
- A closed book assessment
- Facilitator for class is not allowed to be the invigilator for the assessment (same class)
- Assessment papers are to be issued in accordance to the course language registered for only. No mix language assessment is permitted.
- Facilitator to learner ratio is 1: 40 for theory
- A safety pass/card shall be issued to each learner who passes the assessment, by the LSP.
- All training records must be kept by LSP for period of no less than 2 years for audit purpose.

2.4 Checklist for LSPs:

- URA approved use of venue: Commercial School (theory only) or Industrial Training (theory and practical)
- Facilitators to be approved by authority by course, language and venue
- Updated register of all facilitators by course, language and venue
- Facilitator certification: Advanced Certificate/Specialist Diploma in WSH for worker/supervisor & above courses
- Course information including cancellation and refund policy must be available to public
- Accountability for all test question sets produced / destroyed
- Guidelines for invigilator and assessors
- Code of conduct for Invigilators and Assessors
- Register to show production, issuance and destruction of safety certificates/pass/card
- All safety certificates/safety pass/card to be issued by LSPs to learners no later than one month from assessment date
- End of course evaluation for each course
- LSPs to have copies of MOM Technical Notes Parts I and II and all relevant documents pertaining to the conduct of the course e.g. Facilitators' and Learners' Guides, SOPs etc

3 SOC (Tunnelling) Training Syllabus

3.1 The SOC (Tunneling) is a recognized WSH training course for all workers carrying out tunneling works in buildings and engineering construction worksites. Learners must have completed and passed the Construction Safety Orientation Course for Workers as a prerequisite to this course.

3.2 Post course, the learners should be able to recognize the safety hazards working in a tunnel, know the preventive measures to be adopted and understand the importance of observing safety signs and safe work procedures.

4 OVERVIEW OF THE COURSE REQUIREMENTS

4.1 Learning objectives for SOC (Tunnelling):

- 4.1.1 Understand general safety in Tunnelling Works
- 4.1.2 Identify hazards working in a Tunnel
- 4.1.3 Practice safety procedures when operating Tunnelling Equipment and Machinery
- 4.1.4 Able to work safely in Confined Spaces
- 4.1.5 Practice safety procedure when doing Hot Work and working in Compressed Air
- 4.1.6 Competent in wearing Personal Protective Equipment (PPE)
- 4.1.7 Know the dangers and precautionary measures associated with Tunnelling Works

4.2 Target audience: This course is designed for all workers carrying out work in a tunnel in building and engineering construction worksite. Workers must have completed and passed CSOC to be eligible to attend this course.

4.2.1 LSP is to ensure that the entry requirement for the course is strictly adhere to. Proof of this entry requirement must be submitted to the LSP. The LSP must retain the proof for future verification and audit.

4.3 Course duration: 4 hours

4.4 Maximum class size: 40 learners for course

4.5 Recommended facilitator/learner ratio:

- Theory Lesson = 1:40

4.6 Course attendance: 100% attendance.

5 TRAINING DELIVERY ADVICE

5.1 Facilitator's guide and learners' workbook/handouts

5.1.1 In order to deliver more effective instruction and ensure consistency in training, a copy of the facilitator's guide shall be prepared. The guide provides the facilitator with information on the course including:

- Course aim
- Learning objectives
- Target audience
- Assumed skills and knowledge
- Course duration
- Class size and facilitator/learner ratio
- Lesson plan

- Course contents and instructional materials according to the course requirements
- Training methodologies
- Areas of focus/emphasis for each slide / topic
- Training resource requirements
- Course administration instruction

5.1.2 The LSP shall also facilitate the learning process by providing each learner with an Aide-memoire to summarize (with illustrations, where possible) key learning points of all the topics covered in the syllabus. This may be in the form of drawings/illustrations rather than words.

5.1.3 The LSP is required to prepare and submit a course reference matrix (see Annex C) for coverage of course contents with respect to the training slides and the practical assessment modes. This is to facilitate cross references between topics and training slides on the said topics.

5.1.4 It is the responsibility of the LSP to ensure that no part of the materials used for the training infringe on patent, design, copyright and intellectual property rights of any individual or organization.

5.1.5 The LSP shall retain an updated version of the training course syllabus, lesson plan, facilitator's guide and aide-memoire at all times for inspection and verification by SAC appointed auditors.

5.2 Training Methodology

5.2.1 Facilitators are expected to draw upon their facilitator-training in the development and delivery of the training programme and to apply appropriate principles of training in the design and delivery of the course.

5.2.2 Recommended training methods for the theory lessons are:

- Classroom instruction
- Case studies
- Videos and photographs, other e-resources and instructional media

5.3 Training venue requirements

5.3.1 For the theory training, this is to be conducted in a classroom with supporting training slides, videos, local case studies on incidents and accidents at the yards, and where possible, actual equipment/PPEs to enhance learning.

5.3.2 The LSP shall ensure the classroom has adequate chairs and writing tables to be comfortably spaced for a class of up to 40 participants for conduciveness to the learning process. There must also be adequate land space to comfortably conduct the practical training and assessment safely. A time device e.g. clock, lightings and ventilation must be adequate for classroom instruction. Emergency exit routes must be clearly marked out and briefed to the course participants at the start of the course. Necessary equipment such as projectors, multimedia player, whiteboards, flipcharts and any other equipment essential for instruction purpose must be made available.

5.3.3 LSP is to adhere to the conditions stipulated in the LSP Terms and Conditions and this CDA at all times, where applicable. Adequate safety control measures must be undertaken to ensure the safety of the learners and facilitators during the conduct of the course/training at all times.

5.4 Training Requirements:

5.4.1 Training site emergency evacuation route – to be briefed at start of course

5.4.2 Training SOP must be available before the conduct of the course

5.4.3 Local case studies, where possible, relating to incidents/accidents at construction sites

6 ASSESSMENT ADVICE

6.1 The LSP is required to administer a 15 minutes written assessment at the end of the course.

6.1.1 The worker must pass the written assessment in order to be issued with the certificate of successful completion. Failure to pass the assessment will render a “Fail” outcome for the worker and he must then retake the course before re-attempting the assessments.

6.2 Written Assessment:

6.2.1 The LSP must administer at least 20 multiple choice question (MCQ) test.

6.2.2 The total allocated time for the written assessment is 15 minutes.

6.2.3 The passing mark for the written assessment is 60%.

6.2.5 During the administration of the written assessment, there shall be an invigilator to ensure the integrity of the assessment process. The facilitator for the course is not permitted to be the assessor or invigilator for his same course participants during the assessment.

FACILITATOR AND ASSESSOR REQUIREMENTS FOR SOC (Tunnelling)

7. A facilitator and assessor of this course should possess the following:
- 7.1.1 Advanced Certificate in Workplace Safety and Health
 - 7.1.2 At least 5 years of relevant industry experience as a supervisor / foreman / safety personnel in the construction industry
 - 7.1.3 Advanced Certificate in Training and Assessment (ACTA) or Diploma in Adult Continuing Education (DACE)

8 END OF COURSE EVALUATION AND FEEDBACK

8.1 The LSP shall conduct an end-of-course evaluation after each course, where learners provide quantitative and qualitative feedback on the course content, duration, training delivery, training materials, training venue, training resources, quality of facilitators and assessors.

8.2 The LSP shall analyse the feedback provided to improve the delivery of the course. Immediate actions shall be taken to address issues with ratings below 3. The actions taken to address issues with a rating of 1 or 2 shall be recorded and kept for audit purpose.

1	2	3	4	5
Poor	Fair	Satisfactory	Very Good	Excellent

9 RELATED WSH LEGISLATIONS, INDUSTRIAL CODE OF PRACTICE AND OTHER REFERENCES (the list is not exhaustive)

- Workplace Safety and Health Act 2006
- WSH (Construction) Regulations 2007

Course Syllabus

Lesson No.	Content	Instructional Mode	Duration (Hours)
Knowledge	1.1 Welcome Note/Training Objectives	Theory	4
	1.2 Accident Case Studies		
	1.3 General Safety in Tunnelling Works		
	1.4 Working Hazards in Tunnelling		
	1.5 Tunnelling Equipment and Machinery		
	1.6 Confined Spaces		
	1.7 Hot Work		
	1.8 Working in Compressed Air		
	1.9 Procedures for Safe Work		
	1.10 Other Safety Precautions		
Total Duration			4

Course Reference Matrix – for theory only

APPROVED TRAINING SYLLABUS Marine Metal Scaffolding Course for Scaffolders				Coverage of Course Content For LSP Inputs	
S/N	Content	Remarks	Duration	Indicate slide number e.g. Slide #2	Mode of Assessment
1	1.11 Welcome Note/Training Objectives 1.12 Accident Case Studies 1.13 General Safety in Tunnelling Works 1.14 Working Hazards in Tunnelling 1.15 Tunnelling Equipment and Machinery 1.16 Confined Spaces 1.17 Hot Work 1.18 Working in Compressed Air 1.19 Procedures for Safe Work 1.20 Other Safety Precautions	Theory	4		

Declaration by LSP

I hereby declare that all the training materials and related particulars / information given are true and correct nor have I infringed any copyright related issues in this entire accreditation process/application

Name of LSP	Name of Applicant	Designation of Applicant
Date	Applicant's	Signature
Date	Head / Principal	Signature

Assessment Plan

- 1 Overview
- 2 Assessment method and duration
- 3 Instruction for preparation of written test
- 4 Assessment Instruments
- 5 Assessment Record

1 Overview of Assessment Plan (listed by topics)

Topics	Lecture (hour)	Assessment Mode	Total (hour)
<ul style="list-style-type: none"> • Welcome Note/Training Objectives • Accident Case Studies • General Safety in Tunnelling Works • Working Hazards in Tunnelling • Tunnelling Equipment and Machinery • Confined Spaces • Hot Work • Working in Compressed Air • Procedures for Safe Work • Other Safety Precautions 	4	WT	4

WT = Written Test

2.1 Instruction for preparation of Written Test

These instructions concern the written assessment of the learner's competency

Specification item	Details on specifications
Learning outcome	Day 1
Duration	15 minutes
Venue	Classroom
Set up	<ul style="list-style-type: none"> Classroom setup for 40 learners. Tables & chairs for individual seating Projector and monitor Whiteboard & markers of different colours Whiteboard duster 2B pencil and eraser for each learner Printed answer sheet Common Clock
Conduct of the Written Test	<ul style="list-style-type: none"> Brief learners to check if they have been given the correct test set Brief learners on the time allocated for the test Brief learners on the close book test format. Brief learners that they cannot refer to any material or notes or discuss the questions with any other learners during the test Brief learners that they are allowed to ask the assessor to explain the question/s Brief learners on the 60% passing mark requirement

Overall Assessment

Written Assessment	Pass / Fail (Marks: _____ %)
Overall Assessment	Pass / Fail

Assessor 1: Name & Signature	Assessor 2: Name & Signature
Date:	Date:

Assessor Feedback: Overall performance of course learners. For NYCs, areas of skills gap and improvements to recommend