

TPTI APPROVED STANDARDS

Basic Scaffolding for Oil and Gas

REV.	0	DATE	15/01/09
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CONTENTS

GLOSSARY		4
INTRODUCTION		5
BASIC SCAFFOLDING FOR OIL AND GAS		
A.1	Target Group	6
A.2	Delegate Prior Achievement	6
A.3	Learning Outcomes	7
A.4	Training Program	8
A.5	Duration of Training	13
A.6	Assessment	13
A.7	Further Training/Assessment	14
RESOURCES		
B.1	Staff	15
B.2	Trainer/Delegate Ratio	16
B.3	Facilities	16
B.4	Equipment	17
B.5	Certification and Recording	18
B.6	Medical and Health Requirements	20

REV.	0	DATE	15/01/09
------	---	------	----------

GLOSSARY

ACOP	Approved Code of Practice
BOST	Basic Offshore Safety Training
DMF	Department of Minerals Fuels
HASAWA	Health & Safety at Work Act
HS&E	Health, safety and environment
LOLER	Lifting Operations and Lifting Equipment Regulations
MEWP	Mobile Elevating Work Platforms
MHSWR	Management of Health & Safety at Work Regulations
OPITO	Offshore Petroleum Industry Training Organization
PFEER	Prevention of Fire, Explosion and Emergency Response Regulations
POB	Personnel onboard
PPE	Personal Protective Equipment
PTW	Permit to Work
PUWER	Provision and Use of Work Equipment Regulations
SMS	Safety Management System
TPTI	Technical Petroleum Training Institute
WAH	Working at Heights

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

INTRODUCTION

This standard was developed by TPTI in conjunction with a workgroup representing the interests of the offshore oil & gas industry in Thailand.

This document introduces and describes the core competence and safety training requirements for personnel involved in Scaffold construction, maintenance and inspection for offshore & onshore Oil & Gas industry in Thailand subject to CITB, British Standards, European Standards and other recognized international standards. It explains how competence shall be assessed and certified.

The industry recognises that a major objective is to prevent incidents occurring, and if they do occur, to control them and minimise their effect. It is important therefore to set common standards and to ensure that they are maintained.

The attainment of competency will require personnel to demonstrate both theoretical knowledge and practical skills. Dependent upon the experience of personnel, the following steps in training and assessment must be undertaken:

1. Basic training and knowledge assessment carried out at a **TPTI** approved training establishment.
2. Ongoing development and skills enhancement.

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

A.1 Target Group

This program is designed to meet the initial offsite training and assessment requirements for personnel concerned with scaffolding safety, the construction, and maintenance of installations in Exploration and Production operations in Thailand.

This Basic Scaffolding for Offshore Operations Standard contains:

Learning Outcomes
Training Program Content
Statements on:
 Assessment
 Further Training / Assessment

This Standard consists of the following modules:

Safety in Scaffolding
Scaffolding Components
Access Scaffold and Platform Classification
SCAFFTAG System
Independent Tied Scaffolding
Tower Scaffolding
Cantilevered Scaffolding
Birdcage Scaffolding

A.2 Delegate Prior Achievement

Delegates must have completed TPTI Approved Working at Heights (WAH) training prior to taking this course.

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

The responsibility for delivering this program rests with TPTI Approved Training Providers.

A.3 Learning Outcomes

Following a series of explanations, demonstrations and opportunities to practice, delegates will be assessed as a candidate against the following learning outcomes.

Candidates will Demonstrate Knowledge of:-

- a) Relevant legislation under Thai laws and recognized international standards, personal responsibilities, ACOPs, relevant standards and guidelines
- b) Safety in Scaffolding
- c) The basic requirements of scaffolding to support a working platform.
- d) Safe installation and inspection of independent, static tower, birdcage, and cantilevered scaffolds, including those for circular structures, erected from standard tube and fittings.
- e) Safety hazards in the scaffolds.
- f) Appropriate action to prevent, remedy hazards in the scaffolds mentioned above.

Candidates will Demonstrate Awareness of:-

- a) All scaffolding components in a structure
- b) Classification of the foundations and ties for stability of the scaffolding structure.
- c) The standard types of Gin wheels for raising and lowering materials in a scaffold structure.
- d) The purposes for which each of the four main classes of access scaffolds and platforms are typically used or/and suitable for personnel as required by the operation.

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

A.3 Learning Outcomes (continued)

Candidates will Demonstrate the Ability to:-

- a) Identify and classify a type of platform duty, such as Light Duty, General Purpose, Heavy Duty and Special Duty, etc. which is necessary for correct SCAFFTAG System marking and scaffold safety inspection.
- b) Be able to read a table with the maximum limits for scaffolding structures that can be erected by competent personnel at work site and know how to erect, alter and dismantle scaffolds using normal operating procedures and without reference to external engineering support.
- c) Erect the three basic scaffolding types (independent, tower and cantilevered) with standard Tubes, Fittings, and Timber Scaffolding Boards as required by International standards.

A.4 Training Program

The training program outlined below will assist delegates to meet the stated training outcomes.

In order to make efficient use of time and ensure effective learning, the three phases of explanation, demonstration and practice should be integrated wherever practicable. To facilitate the most effective learning, the practical part will always succeed the theoretical part of the training.

Full use should be made of visual/audio-visual aids and course handout materials.

Practical exercises should be designed and delivered solely to meet these standards, and must not place on delegates any physical or mental demands other than those required to meet the standard.

1. Safety in Scaffolding

Give an overview of:

- a) Introduction
- b) Overall Objectives
- c) Specific Objectives
- d) Scaffolding Definitions / Terminology
- e) Safety Awareness

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

A.4 Training Program (continued)

1. Safety in Scaffolding (continued)

Give an explanation of:

- a) How the basic requirements of scaffolding support a work platform
- b) The common names of the basic components. Where they are placed in the structure and the job they do.
- c) Scaffolding Risks

2. Scaffolding Components

Give an overview of:

- a) Scaffolding Tubes
- b) Scaffolding Coupling and Fittings
- c) Timber Scaffolding Boards
- d) Foundations for Scaffolding Structure
- e) Ties for Scaffolding
- f) Ladders and Access Platforms
- g) Gin Wheels

Give an explanation and demonstration of:

- a) Scaffolding Tubes
 - Steel Tube
- b) Coupling and Fittings
 - Right angle coupler
 - Swivel coupler
 - Sleeve coupler
 - Putlog coupler
 - Beam clamp
 - Base plate
- c) Timber Scaffolding Boards
- d) Foundations
- e) Ties
- f) Ladder Access on Working Platforms
- g) Gin Wheel
 - Raising and lowering material

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

A.4 Training Program (continued)

3. Access Scaffold and Platform Classification

Give an overview of:

- a) Independent Tied Scaffolding
- b) Tower Scaffolding
- c) Cantilevered Scaffolding
- d) Birdcage Scaffolding

Give an explanation of:

- a) Purpose for each of the main classes of scaffolding and why they are typically used

4. SCAFFTAG System

Give an overview of:

- a) Marking of Scaffolds
- b) SCAFFTAG Stage – 1 (Under Construction)
- c) SCAFFTAG Stage – 2 (Construction Completed)
- d) SCAFFTAG Stage – 3 (On-going Inspections)
- e) Scaffolding Inspection Sheet

Give an explanation of:

- a) Purpose for each of the main stages of scaffolding tags and why they are typically used
- b) Monitoring Scaffold status

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

A.4 Training Program (continued)

5. Independent Tied Scaffolding

Give an overview of:

- a) General Purpose
- b) Use of Platform / Duty
- c) Meaning of
 - Standards
 - Ledgers
 - Main Transoms
 - Intermediate Transoms
- d) Type of Bracing
- e) Maximum limits of table defines
- f) Erecting an Independent Scaffolding

Give an explanation and demonstration of:

- a) Job planning and site preparation
- b) Preparation of Tools and Scaffolding equipment
- c) Working practice on Independent Tied Scaffold structures
- d) SCAFFTAG System

Delegates to practice and demonstrate all elements of a) to d).

6. Tower Scaffolding

Give an overview of:

- a) General Purpose
- b) Type of Towers
 - Stationary (Static)
 - Mobile
- c) Height to Base Limitation
- d) Plan Bracing
- e) Maximum limits of table defines
- f) Erecting a Tower Scaffolding

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

A.4 Training Program (continued)

6. Tower Scaffolding (continued)

Give an explanation and demonstration of:

- a) Job planning and site preparation
- b) Preparation of Tools and Scaffolding equipment
- c) Working practice on Tower Scaffold structures
- d) SCAFFTAG System

Delegates to practice and demonstrate all elements of a) to d).

7. Cantilevered Scaffolding

Give an overview of:

- a) General Purpose
- b) Vertical Bracing
- c) Bracing
- d) Maximum limits of table defines
- e) Erecting a Cantilevered Scaffolding

Give an explanation and demonstration of:

- a) Job planning and site preparation
- b) Preparation of Tools and Scaffolding equipment
- c) Working practice on Cantilevered Scaffold structures
- d) SCAFFTAG System

Delegates to practice and demonstrate all elements of a) to d).

8. Birdcage Scaffolding

Give an overview of:

- a) General Purpose
- b) Access and Type of Birdcage Scaffolding
 - Single Lift
 - Multi Lift
- c) Lift Height
- d) Safety Check List
- e) Maximum limits of table defines
- f) Erecting a Birdcage Scaffold

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas

A.5 Duration of Training

The optimum 'contact time' for this training and assessment is seen as 35 hours.

It is suggested that a ratio of 40%:60% theory/practical is appropriate.

- The total contact time per day shall not exceed 8 hours.
- The total training day shall not exceed 10 hours

The total training day includes

- contact time
- coffee and meal breaks
- travel time between training sites where applicable

Assessments, both written and practical, will be conducted after the training program has been completed.

A.6 Assessment

Assessments will be conducted by TPTI approved training providers.

Delegates attending this training and assessment program (referred to as candidates during assessment) will be given a series of explanations and demonstrations which will identify what they are expected to know and do. This will be followed by practical exercises which will allow delegates to demonstrate their skills, knowledge and understanding of Basic Scaffolding.

Assessment of the candidates' performance will be against the stated learning outcomes and will involve both written and practical assessments. Candidates who achieve a rating of 70% or higher on the written assessment and a 'Pass' on the practical assessment, will be issued a TPTI certificate.

If they achieve lower than 70% or fail the practical assessment, the candidate must retest the failed portion of the assessment within eight weeks. The candidate will be allowed two attempts at the retest within the eight week period, if required.

If all attempts described above fail, then the candidate must re-take the Basic Scaffolding for Oil and Gas.

REV.	0	DATE	15/01/09
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Basic Scaffolding for Oil and Gas
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A.7 Further Training / Assessment

It is recommended that the theoretical and practical elements of this training should be assessed at three year intervals.

An Assessment, both written and practical, will be conducted at the TPTI Approved Training Centers.

Note that the candidates must hold a valid 'Working at Heights' certificate in order to qualify for reassessment.

If a candidate can provide a valid proof of work recognized by TPTI, equaling 1,000 hours from their employer then they are entitled to take a one day written and practical assessment test.

If the candidate achieves a score of 70% or higher on the written assessment and a 'Pass' on the practical assessment, they will be issued a renewal certificate. If they achieve lower than 70% or fail the practical assessment, the candidate must take the TPTI refresher course.

If no proof of work can be provided, the candidate must take the TPTI refresher course.

If the candidate achieves a score of 70% or higher on the written assessment and a 'Pass' on the practical assessment of the refresher course, they will be issued a renewal certificate.

If the candidate achieves lower than 70% or fail the practical assessment, the candidate must retest the failed portion of the assessment within eight weeks. The candidate will be allowed two attempts at the retest within the eight week period, if required.

If all attempts at recertification described above fail, then the candidate must take the Basic Scaffolding for Oil and Gas.

The recommended duration of this training and assessment session should be not less than 20 hours contact time with a ratio of 5%:95% theory and practical.

This Further training and assessment will be conducted at TPTI Approved Training Centers.

REV.	0	DATE	15/01/09
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RESOURCES

In order that a competence program may be delivered successfully it is essential that the correct people are present to support the program and that the appropriate facilities and equipment are in place.

B.1 Staff

Instructional staff will be required to carry out training and assessors will be required to judge candidate's competence. It is important that the staff involved have the appropriate qualifications and experience.

a) Trainers will:

- Have a minimum of 5 years experience in Scaffolding.
- Have training in Scaffolding to an internationally recognized training standard.
- Have training and experience in working and rescue at heights.
- Be trained and qualified in instructional/lecture techniques and/or have proven instructing/teaching experience.
- Have training and experience in Scaffolding equipment including training from recognized providers and on the job experience.
- Be included in an ongoing staff training program which enables them to maintain and update skills and knowledge.
- Be able to clearly communicate in the English language
- Have knowledge of applicable Thai and International Standards and Regulations applicable to Scaffolding structures and Safety

b) Assessors must be:

- Discipline experts trained and qualified in assessment techniques
- Knowledgeable of the areas being assessed

c) All staff must have the appropriate competences to conduct/assist the element of training being conducted.

d) All Training staff will be trained in the causes and consequences stress/anxiety, coping skills and how to manage delegates who are suffering from anxiety.

REV.	0	DATE	15/01/09
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RESOURCES

B.2 Trainer/Delegate Ratio

- a) It is recommended that the maximum number of delegates attending this program is 12.
- b) The following ratios indicate the maximum number of delegates to be supervised by one Instructor at any one time during each activity.

Theory	1:12
Practical	1:6

B.3 Facilities

It is important to make sure that facilities as listed below are available.

Administration arrangements appropriate for enrolment and certification of delegates and all aspects of the delivery of training in accordance with this standard.

Theory training area(s) so designed to enable each delegate view, to hear and participate fully in the subject matter being taught.

Practical training areas so designed to enable each delegate, to individually or as part of a team to view, hear and practice the following:

- a) Job planning and site preparation
- b) Tool and Scaffolding equipment preparation
- c) Working practice on Independent Tied Scaffolding structure
- d) Working practice on Tower Scaffolding structure
- e) Working practice on Cantilevered Scaffolding structure

All facilities must be maintained and where appropriate, inspected and tested in accordance with current standards/legislation and manufacturers recommendations.

REV.	0	DATE	15/01/09
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RESOURCES

B.4 Equipment

a) Different types of equipment may be required and it is important to make sure that is both available and fit for purpose and of a type associated with the Oil & Gas industry in Thailand subject to CITB, British Standards, European Standards and other recognized international standards.

- Scaffolding Models
 - Independent Tied Scaffolding Model
 - Tower Scaffolding Model
 - Cantilevered Scaffolding Model
- Tubes
- Fittings
- Boards
- Scaffold ratchet
- SCAFFTAG equipment

b) Safety Equipment appropriate to training being delivered.

- a) First Aid
- b) PPE
- c) Fire fighting equipment

All equipment must be maintained, and where appropriate, inspected and tested in accordance with current standards/legislation, guidance and manufacturers recommendations.

REV.	0	DATE	15/01/09
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GENERAL GUIDANCE & REQUIREMENTS

B.5 Certification & Recording

A **TPTI** Certificate will be issued to all candidates assessed as meeting the stated outcomes, detailing that they are competent to proceed to the workplace for company specific training where applicable. Delegates' details will also be registered in the **TPTI Central Register**. The issue of a certificate indicates that the delegate has achieved a level of competence to enable him/her to proceed to the workplace for further training and development. Following satisfactory assessment the training provider delivering the training will issue every candidate a certificate.

Each individual attending any TPTI approved program must be registered with the Central Register (CR) operated by TPTI.

Training Establishments are responsible for the following:

- a) The issuing of certificates direct to the delegate completing the program and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed against the agreed training outcomes and must contain the following:

Establishment name

Full TPTI course title stating that it is TPTI approved

TPTI course identification code

Delegate's name

Course dates

Expiry date (will be the day before the course completion date)

Unique Certificate Number

Establishment Signatory

- b) Each individual attending any TPTI approved program must be registered with the Central Register (CR) operated by TPTI. Registration must be made by training establishments to TPTI on a daily basis.
- c) All Joining Instructions contain information, which indicate certain aspects of the course are of a physical nature. The responsibility for the individual completing the course without any adverse effects to their present state of health lies with the delegate and/or company sponsoring the delegate

REV.	0	DATE	15/01/09
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GENERAL GUIDANCE & REQUIREMENTS

B.5 Certification & Recording (cont'd)

- d) Prior to each course commencing, delegates must sign a declaration indicating they have read and understood a written statement regarding the physical nature of the program and the need for delegates to be in good health. Instructional staff should also read out a statement indicating this at the time.
- e) Where doubt exists regarding the medical fitness of any delegate, the training establishment should ask the delegate or their employer to seek the advice of a medical examiner.
- f) A Medical officer, familiar with the nature and extent of the training is "on call".
- g) Risk assessment of all training areas and provision of all appropriate safety equipment.
- h) Written statements of organisation for all sessions, which clearly define responsibilities and relationships for all staff either directly or indirectly involved.
- i) All training and supporting activities are carried out in accordance with current legislation and safe working practices.

REV.	0	DATE	15/01/09
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GENERAL GUIDANCE & REQUIREMENTS

B.6 Medical and Health Requirements

Emergency response training contains physically demanding and stressful elements. All personnel who participate in such training should be medically fit and capable of participating fully.

Training Establishments are required to ensure that prior to participating in practical exercises the delegate either;

- a) Possess a valid, current medical certificate from the hospital, clinic, or clinical agents registered under Thai government, and:
- b) Undergoes an appropriate screening by the trainer or medical officer inside the training establishment area.

It is recommended that this information is given to delegates along with pre-course joining instructions

Guidance and advice on this standard is available by contacting:

Technical Petroleum Training Institute (TPTI)
Energy Complex Building B
555/2, 11th Floor, Vibhavadi-Rangisit,
Chatuchak, Bangkok 10900 Thailand

Tel: 66 29365184
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TPTI Standard – Basic Scaffolding for Oil and Gas

REV.	0	DATE	15/01/09
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