STANDARDIZATION OF ON-SITE TREATMENT IN MALAYSIA
WHY DO WE NEED STANDARDIZATION

- Performance and durability
- Supplying the industries need
- Testing and certification in compliance to specifications/standard

OPERATOR

SYSTEM PROVIDER

ACCREDITATION BODIES
Aims of Standardization

- Quality of goods and services
- Quality of life
- Efficient use of resources
- Conditions for trade
PROVISION OF LAW
WATER SERVICES INDUSTRY ACT 2006

SECTION 45
• Plans and specifications for the construction of sewerage systems and septic tanks require the approval of the Commission

SECTION 129
• Responsible of manufacturers, suppliers and person whom installs the sewerage products/systems to uses or supplies a standard product/systems

SECTION 180(a)(i)
• Minimum standards and specifications which shall be used in the design, construction, installation, protection, operation and maintenance of any water supply system or sewerage system
PRODUCT SPECIFICATION

SEPTIC TANKS

- Application
- Certification
- Design
- Performance

MALAYSIAN SEWERAGE INDUSTRY GUIDELINES VOL. 5 – SEPTIC TANKS
3rd Edition January 2009
Published by SPAN

MALAYSIAN STANDARD ON SITE TREATMENT UNITS PART 1: PREFABRICATED SEPTIC TANKS SPECIFICATIONS
Publish on June 2012

SMALL SEWAGE TREATMENT SYSTEM

- Certification
- Guideline
- Construction & Installation
- Performance

TECHNICAL SPECIFICATION SEWAGE TREATMENT SYSTEM
Part 1: Prefabricated Tanks - Packaged Plants
First Edition October 2010, Revision March 2013
Publish by SPAN

TECHNICAL SPECIFICATION SEWAGE TREATMENT SYSTEM
Part 2: Construction and Installation - Packaged Plants
First Edition October 2010, Revision March 2013
Publish by SPAN

MALAYSIAN STANDARD ON SITE TREATMENT UNITS PART 2: PACKAGED PREFABRICATED SMALL SEWAGE TREATMENT SYSTEM SPECIFICATIONS
Final draft
MALAYSIAN SEWERAGE INDUSTRY GUIDELINES
VOL. V
SEPTIC TANKS

PURPOSE

• To set up the requirements of SPAN for design and construction of Individual Septic Tank

APPLICATION

• Development with population equivalent size up to 150 PE
• For single development shall not more than 30 PE
SEPTIC TANKS – GENERAL USAGE REQUIREMENTS

- Only for total development < 150PE
- Individual septic tank (IST) can only serve one premises
- Size capacity – smallest (5PE) & largest (30PE)
- Multiple IST within single lot not allowed

TYPES OF SEPTIC TANKS

- Prefabricated
- Cast In-Situ

EFFLUENT DISCHARGE

- BOD5 : 50 mg/L
- Suspended Solids : 100mg/L
CONTENTS

GENERAL GUIDELINES

Condition of Installation
- Development to small for off site
- No public sewer to connect
- Homestead Developments

DESIGN GUIDE

- Design
  - Non-proprietary systems (cast in situ)
  - Proprietary systems (prefabricated)

SEPTIC TANK LOCATED IN SENSITIVE RECEIVING WATERCOURSE

- Further treatment methods for achieving higher effluent quality
  - Disinfection
    * However it was not enforced
TYPICAL LAYOUT
Front Lane

Typical Layout Using Front Access (Bungalow, Terrace House, Shop House and Commercial Building)

Legend:
- Roadside drain
- Boundary line
- ST Septic tank
- Inspection chamber
- Gate

1, 2 Terrace House/Shop House Commercial Buildings/Property
FA Front Access
RA Rear Access

Frontal road
TYPICAL LAYOUT

Bypass

Layout showing Bypass to Public Sewer (for all applicable developments including Terrace Houses)
MS 2441-1:2012
ON SITE SEWAGE TREATMENT UNITS – PART 1:
PREFabRICAteD SEpTIC TaNKS SPECIFICATIoN

SCOPE

• Requirement for prefabricated septic tanks and their associated fittings
• Treatment of sewage for up to 30 PE
• Installed below ground level
• Serve one premise only
• Covering two materials FRP & PE
• Intended for use by consultants, designers, manufacturers, certifying bodies, installers, regulators and other interested parties
MAJOR SPECIFICATION REQUIREMENTS

- Capacity
- Inlet & Outlet fittings
- Flow path
- Openings
- Anchorage
- Filter media
- Partitions
- Marking
- Thickness
STANDARDS REFERENCE

- AS/NZS 1546 : 2008 - On-site domestic wastewater treatment units Part 1: Septic Tanks

- EN 12566: 2007 - Small wastewater treatment systems for up 50 PT Part 1: Prefabricated Tank

- CAN/ CSA B66 : 2005 - Design, material and manufacturing requirements for prefabricated septic tanks and sewage holding tanks

OTHER REFERENCES

- Malaysian Sewerage Industry Guidelines, Volume 5 - Septic Tanks

- Water Services Industry Act 2006

- Water Services Industry (Desludging and Septage Discharge) Regulations 2008 [Approved but not gazette]
ON SITE SEWAGE TREATMENT UNITS – PART 2:
PACKAGED PREFABRICATED SMALL SEWAGE TREATMENT PLANT SPECIFICATIONS

SCOPE

- Requirement for packaged prefabricated small sewage treatment system (SSTS) and their associated fittings
- Designed for sewage flow of 31 up to 149 PE
- Installed below ground level
- No vehicle load and not installed in high water table area
- Two materials covered, FRP & PE
- Assembled in factory
- Intended for use by consultants, designers, manufacturers, certifying bodies, installers, regulators and other interested parties
SCHEMATIC DIAGRAM OF SSTS

Key

$H$  total depth of the plant  

$H_w$  height of exterior water level (groundwater)  

$K$  coefficient of horizontal soil pressure  

$h$  depth of the backfill from the top of the tank to ground level  

1  inlet  

2  outlet
MAJOR SPECIFICATION REQUIREMENTS

- Capacity
- Inlet & Outlet fittings
- Openings
- Anchorage
- Filter media
- Partitions
- Marking
- Thickness
- Treatment efficiency
STANDARDS REFERENCE

- **MS 1225-2:2006**, Polyethylene (PE) tanks for cold water storage - Part 1: Capacity more up to 600 gal (first revision)

- **AS/NZS 1546.1: 2008**, On-site domestic wastewater treatment units - Part 1: Septic tanks


- **BS EN 12566-3+A1: 2009**, Small wastewater treatment systems for up 50 PT - Part 3: Packaged and/or site assembled domestic wastewater treatment plants


OTHER REFERENCES

- **Malaysian Sewerage Industry Guidelines, Volume 5 - Septic Tanks**

- **Water Services Industry Act 2006**

- **Water Services Industry (Desludging and Septage Discharge) Regulations 2008** [Approved but not gazette]
TECHNICAL SPECIFICATION SEWAGE TREATMENT SYSTEM

Part 1: Prefabricated Tanks - Packaged Plants &
Part 2: Construction and Installation - Packaged Plants

SCOPE

• Requirements for packaged sewage treatment plant consisting prefabricated tanks made of FRP or PE
• Serve between 150 and 5000 population equivalents
SPECIFICATION

- Performance requirements and associated test methods for the prefabricated tanks and their accessories that are installed buried in the ground with no vehicles loads are applied above it

- Marking requirements and evaluation of conformity for the prefabricated tanks
TECHNICAL SPECIFICATION SEWAGE TREATMENT SYSTEM
Part 2: Construction and Installation - Packaged Plants

SPECIFICATION

- Operational requirements and performance criteria that deal with features such as functional design and material as means of compliance with overall requirements of the packaged plant
- Focus is on operational systems of the plant comprising piping, aeration, pumping, control and other ancillaries
- Specification also includes treatment efficiency testing to ascertain if the plant achieve the effective and reliable operational performance under normal operating conditions throughout its serviceable life span
JUSTIFICATION

End users will have the opportunity in having good quality and certified products

To ensure necessary certification is obtained thus manufacturers are more responsible and accountable

To ensure construction and installation is at desirable level to perform as required

To standardize treatment process of the system

To elevate and control the quality of prefabricated components of the system produced by manufacturers

To ensure the system would be able to provide treatment efficiency as intended

To specify level of operation and maintenance required as defined for the system
IMPORTANCE OF MSIG, MALAYSIAN STANDARD AND TECHNICAL SPECIFICATION DOCUMENTS

To elevate and maintain the quality of Septic Tanks & SSTS produced by manufacturers at desirable level to perform as required

To ensure necessary certification is obtained thus manufacturers are more responsible and accountable.
BENEFITS OF STANDARDIZATION

Well Planned Sewerage Services

Good Quality Assets
THANK YOU

SEWERAGE REGULATORY DEPARTMENT
NATIONAL WATER SERVICES COMMISSION
MALAYSIA