MOM/OSHD/2026-01
(Supersedes OSHD/OSHI/MI043)

23 January 2026

To: Gate Designers, Manufacturers, Installers and Contractors and
All interested Parties

Updated Circular – Safety Considerations in Gate Design, Operation and Maintenance

In March 2012, the Ministry of Manpower (MOM) and the Building and Construction Authority (BCA) issued a joint circular, following a series of gate toppling accidents that resulted in one fatality and four others injured, to guide and ensure the safety of all parties involved. The core principles established then remain sound — safe gate design, proper installation, and effective maintenance continue to be the foundation for preventing toppling incidents.

2. From 2023 to 2025, three fatal workplace accidents involving the toppling of sliding gates occurred. Investigations revealed recurring issues such as worn-out stoppers, inadequate guide supports, derailment caused by poor track maintenance, and unsafe troubleshooting practices. These accidents could be prevented if the heavy gates were **properly supported at all times**, either by brackets, stoppers or other appropriate means – during the installation or maintenance phases.

3. This 2026 circular provides a comprehensive update from the original circular, incorporating updated standards, clearer technical requirements, new accident case studies, and strengthened expectations for design, installation, operation, and maintenance of gates.

4. Industries are strongly reminded to ensure that all foreseeable hazards are identified and to implement adequate control measures for the safety of all parties.

SILAS SNG
COMMISSIONER FOR WORKPLACE SAFETY AND HEALTH
MINISTRY OF MANPOWER

Encl: Annex A - Safety Considerations in Gate Design, Operation and Maintenance
Annex B - Accident Case Studies
Annex C - Informative references on safety in gate designs and operations

ANNEX A

Design Phase

1. All gates should be designed such that their installation, operation and maintenance can be carried out safely. The following should be considered when designing the gate:

   a) Gate structures should be structurally stable and designed in accordance to prevailing structural codes (e.g., SS EN 1993 series, SS 515:2021).
   b) Manually operated gates should be designed such that the force, to open or close it, is restricted to 150N for residential property gates and 260N for commercial/ industrial property gates.
   c) Guides and stoppers should be adequately designed and sized to ensure that the gate will not over-travel nor will it topple in the event of derailment during operation.
   d) Housings for motors of electrical gates should be standalone elements and not have dual usage as stoppers or guides for the gates. This is to ensure that the gates remain safe for use in the event the motors and housings are removed for maintenance.
   e) The gates (including door leaves, handles and fittings) should be designed such that risk to users having their hands crushed, cut or trapped is minimized. This could be done through having suitable clearances or through provision of guarding. Examples of these could be found in BS EN 12453:2017 and BS EN 12604:2017 +A1:2020.

Installation and Testing

2. The following should be observed before and during any gate installation:

   a) Conduct a risk assessment to identify all potential hazards that may arise during the installation and testing of the gate, e.g. toppling of unsupported gate. Control measures should then be recommended and implemented to reduce, if not eliminate, all foreseeable risks to as low as reasonably practicable.
   b) Develop safe work procedures and method statements for gate installation and testing, in accordance with the installation sequence provided by the gate manufacturer.
      i. For sliding gates: equip the gate with gate stoppers and end plates to prevent it from travelling beyond its supports. Guides and support brackets must be designed to be able to keep the gate upright, and prevent the gate from toppling in the event of derailment from the track.
      ii. For all gates: if the gate has to be left unsecured during the installation and testing process, provide temporary props/ supports to keep the

gate upright. Warning signs should be erected to warn workers and public not to approach the gate.

c) Deploy only trained and authorised personnel to carry out gate installation and testing works.
d) Provide on-site supervision to ensure risk controls are implemented, workers maintain safe positions, and safe work procedures are strictly followed.
e) Testing of the gate to verify the provisions against derailment/ disengagement should be done by the installer before handover to the building owner. The recommended testing procedures (as detailed in BS EN 12604:2017 +A1:2020 Industrial, commercial and garage doors and gates – Mechanical aspects – Requirements and Test methods) are as follows:
    i. The gate should be pushed against a cube of 400mm length placed in the travel path of the gate.
    ii. The gate should be pushed twice to their terminal position with a force of 300N and speed of 0.3 m/s.
    iii. The failure of a non-rigid suspension element (chain, rope or strap) should be simulated.
    iv. The gate should then be examined to see if they remain on track or on the guiding element and if there was any permanent deformation which would affect their function.

Operation, Repair and Maintenance

3. The following measures should be taken by the owner, occupier or contractor when operating and maintaining a gate:
    a) Gates should be inspected and maintained according to manufacturer's recommendations. In addition, gate tracks should be properly upkept to prevent debris accumulation that could cause gate derailment.
    b) Gates should be inspected for any missing safety features which could affect the safe operation of the gate and the safety of workers performing the repair and maintenance. Missing safety features must be replaced first before commencing works.
    c) Do not modify any part of the gate and its components unless approved by the gate's manufacturer.
    d) All operation and maintenance should be carried out in accordance to the manufacturer's instruction. Conduct risk assessments for gate operation and maintenance processes to identify potential hazards and implement appropriate risk control measures, e.g. put in place measures to prevent uplifting of gate during repair and maintenance .
    e) If the stopper needs to be removed or the gate needs to be lifted up during maintenance, the gate must be safely and adequately propped and supported to prevent toppling. Install warning signs and barricades to warn all persons and keep them away from the unsecured gate.

f) Corrosion, weathering and repetitive use may compromise stopper effectiveness and gate safety. Seek the manufacturer's advice on replacing the stoppers in such cases to prevent derailment/ disengagement.
g) Only trained and authorised personnel can carry out repair work on the gate.

ANNEX B

ACCIDENT CASE STUDIES

Case 1 (Installation and testing phase)

On 21 October 2024, a worker was manually pushing a steel sliding gate (weighing about 330kg) within a worksite for testing purpose after installation, when the gate travelled beyond its vertical supporting brackets. It toppled and struck the worker as it fell. The worker sustained head injuries and was sent to the hospital where he died the same day.

Preliminary investigations revealed that there was no stopper installed to prevent the gate from travelling past its support brackets.

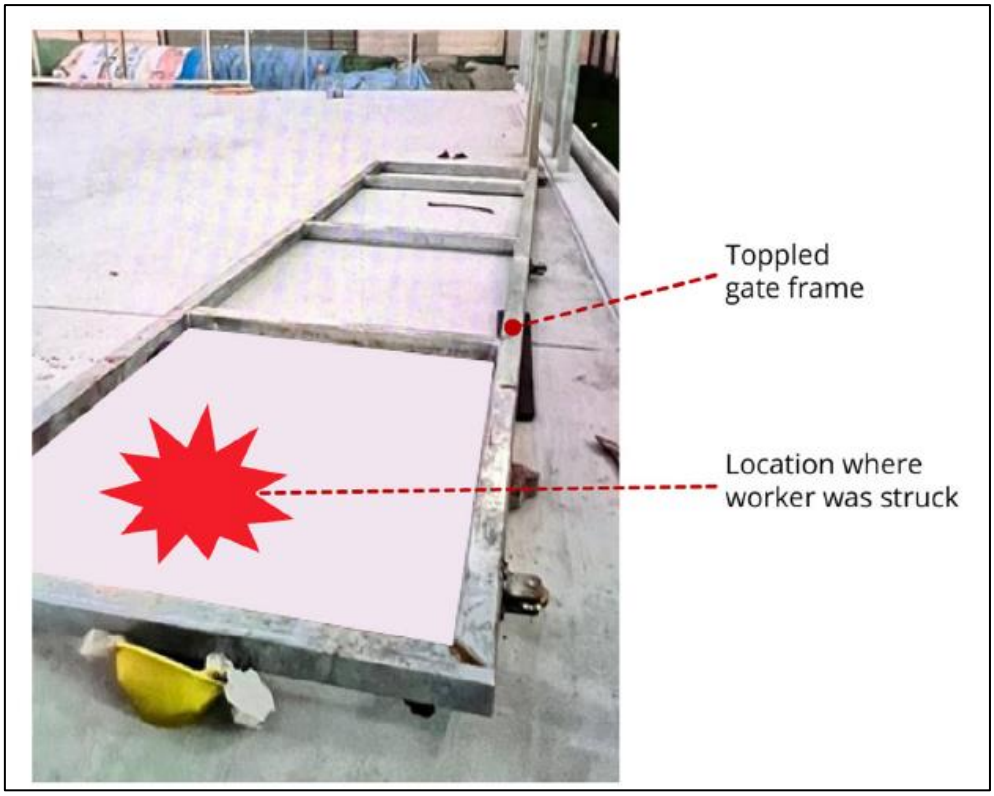

Photo 1- Overview of the accident scene

Case 2 (Operation phase)

On 9 June 2023, a prime mover driver was closing a steel sliding gate at the entrance of a warehouse when the gate travelled beyond its stopper and toppled onto him. He was sent to the hospital where he died the same day.

Preliminary investigations revealed that the stopper affixed at the top of the gate was worn, which could have resulted in the gate travelling beyond its guide bracket.

Photo 2 - Overview of the accident scene

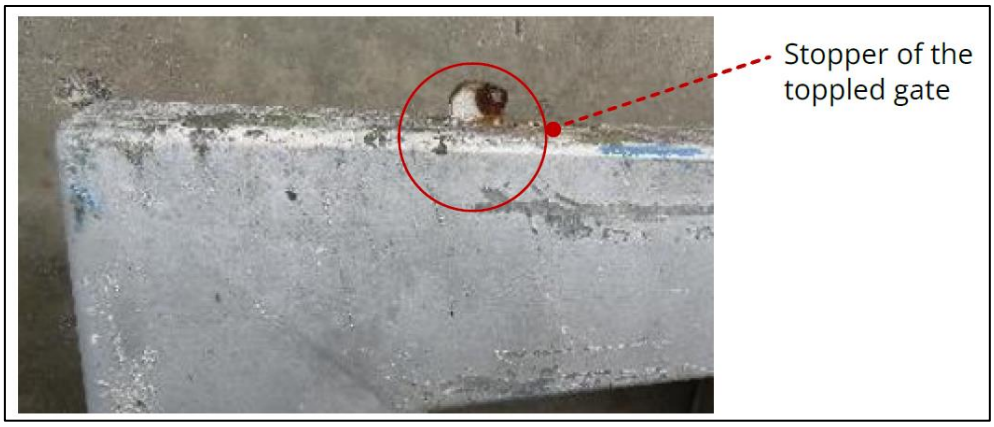

Photo 3 - Worn out stopper of the toppled gate

Case 3 (Repair and Maintenance phase)

On 6 November 2025, a worker was troubleshooting a faulty sliding main gate when the gate toppled onto him. He was sent to the hospital where he died the same day.

The worker had used a steel bar as a lever to lift up the bottom of the gate off the ground track. In the process, the inverted U-channel at the top of the gate was also raised above its fixed roller support. This caused the gate to become unstable and topple.

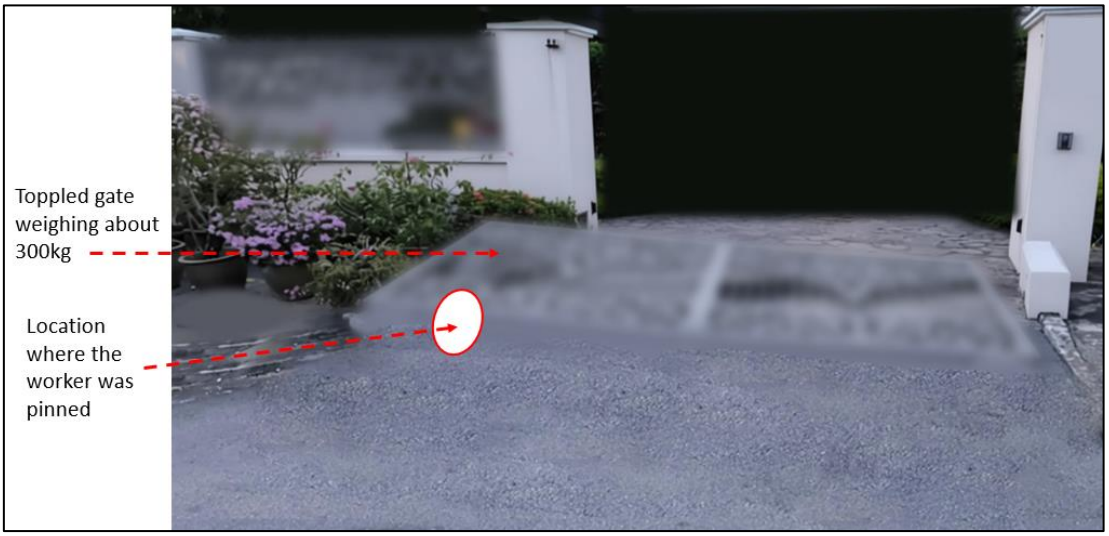

Photo 4 - Overview of the accident scene

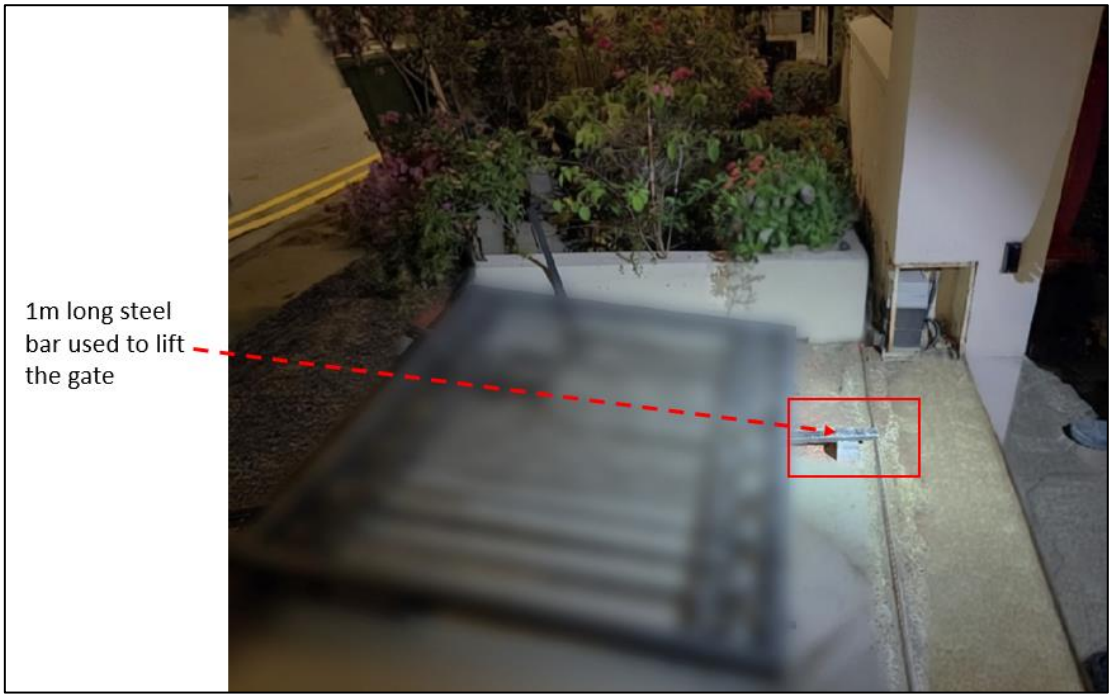

Photo 5 - Tools used by worker to lift the gate

ANNEX C

REFERENCES

A. SS EN 1993 series (Eurocodes – Design of steel structures)
B. SS 515:2021 (Code of practice for supervision of structural works)
C. BS EN 12453:2017 (Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Requirements and test methods)
D. BS EN 12604: 2017+A1:2020 (Industrial, commercial and garage doors and gates – Mechanical aspects – Requirements and test methods)
E. BS EN ISO 13857:2019 (Safety of machinery – Safety distance to prevent hazard zones being reached by upper and lower limbs)

Further information can be found at:

A. Workplace Safety & Health Council (WSHC)
   https://www.wshc.sg/
B. Ministry of Manpower (MOM) – Occupational Safety & Health Division (OSHD)
   http://www.mom.gov.sg/workplace-safety-health/Pages/default.aspx