

## BACKGROUND

Think Brick Australia (TBA) represents the clay brick and paver manufacturers of Australia. Safety is a major issue and concern for our members.

Additional attention and care should be taken during delivery, unloading or other associated high-risk activities for masonry deliveries onto slabs. Failure to implement safe practices carries the risk of serious injury from collisions with machinery, slab failure or loads falling onto personnel.

This factsheet aims to provide general guidance for the on-slab delivery of bricks, including the use of equipment and machinery and the state of the slab during delivery. The factsheet will make reference and provide links to relevant standards and processes.

## LOADING ONTO CONCRETE SLABS

### The Australian Standardised Pallet

- Has dimensions of 1165x1165mm;
- Weights 35-45kg; and
- Has a maximum loading limit of 2 tonnes during handling operations.

### Remember:

- The loaded height needs to be reasonable and safe for material handlers;
- Extra care should be taken when working with pallets loaded above shoulder height; and
- The manual movement of pallets should be avoided when possible.

Suppliers will provide the number of their masonry units which can fit on pallets. This information may be displayed on their websites or confirmed with customers prior to delivery. Communication between supplier and customers is essential in ensuring all pallet size and weight information is provided. Some typical specifications:

#### Universal 76 Extruded Clay Brick



Dimensions: 230x110x76mm	
Weight: 3kg	No. per pallet: 400-500
Loaded Pallet Weight: 1200-1500kg	

#### Universal 76 Dry Pressed Clay Brick



Dimensions: 230x110x76mm	
Weight: 3.8kg	No. per pallet: 400
Loaded Pallet Weight: 1520kg	

Note: Some Australian and international producers may elect to use ISO dimensioned pallet sizes instead – please clarify with your manufacturer for more information.



### When to load?

Loading should only be placed on the concrete slab after its initial setting period. As a rule of thumb:

- 7 days after casting: 75% of design compressive strength is achieved; and
- 28 days after casting 100% of design compressive strength is achieved.

No load should be applied prematurely unless verified by a structural engineer beforehand.



### How much to load?

The **dead load** encompasses all loads that don't change over time. (e.g. Permanent building components.)

**Live loads** are loads that can change over time. (e.g. vehicles, materials or persons on the slab.)

The **service load** is equivalent to the loading that can be supported by a concrete slab as specified by an engineer.

A rough calculation can be used to approximate how many pallets can be supported by a slab:

$$\frac{\text{Service Load} - \text{Dead Load}}{\text{Loaded Pallet Weight}} = \text{No. of Pallets}$$

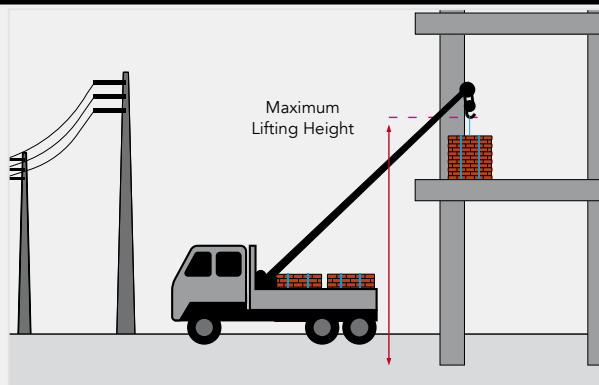
Note: This equation does not take into consideration the loading of machinery, personnel and any factors of safety. It should only be used as a rough guide.



## LOADING ONTO SLABS IN MULTI-STOREY BUILDINGS

Industry best practice advises management to place loads on lower floors in multi-storey buildings. This practice improves building stability, site tidiness, reduces electrical dangers and accommodates machinery limitations.

**Consult:** TBA/CMAA Overhead Power-lines safety factsheet for electrical safety information.



Awareness of the dangers of working at heights and limitations of vehicles is important when loading onto multi-storey buildings

## VEHICLES AND MACHINERY



### Vehicle Loaded Cranes

Delivery of Bricks will often require the use of cranes. It is crucial that personnel on site ensure:

- The crane set up is following safe operating procedures set out by *Safe Work Australia's General Guide for Cranes*.
- The load is rigged correctly by a qualified rigger and licenced doggers when required.

**Consult:** *Safe Work Australia's High-Risk Work Licensing for Vehicle Loading Cranes Information Sheet* for more information.



### Industrial Lift Trucks

Industrial lift trucks (e.g. forklifts) are used for unloading and moving bricks during and after deliveries around the site. Safe operation of machinery requires:

- A risk assessment of the activity be performed beforehand, and risks identified are addressed.
- The operator follows the safe operating procedures for industrial lift trucks.

**Consult:** *Safe Work Australia's General Guide for Industrial Lift Trucks* for more information.



### Trucks

Most brick deliveries will be transported to the site using a truck. Safe operating procedures for trucks include:

- Delivery drivers performing a pre-delivery risk assessment.
- The erection of a designated loading/unloading zone to prevent trucks from interfering with other activities on site.

**Consult:** TBA/CMAA Transport safety factsheet for more safe loading and unloading procedures.

## DELIVERY AND STORAGE

The layout of the workplace must allow for persons to:

- Enter and exit the workplace safely.
- Move within the workplace safely.

*These requirements apply for both normal and emergency situations.*

An untidy workplace is a hazard which restricts movement on site. All stakeholders must manage work health and safety risks in accordance with *Safe Work Australia's Model Code of Practice*.

Common practices to minimise untidiness during delivery and storage include:

- Deliveries being neatly stored in a designated area with enough room for the movement of people and equipment.
- A suitable amount of space between workplaces, walkways and scaffolding should be provided during delivery.
- Site managers should manage delivery timings optimally, limiting storage time and refusing unscheduled deliveries.
- Delivery areas should be isolated from activities on site when possible and engineering controls implemented when isolation is not possible.

## Double Stacking

Double-stacked masonry delivery is only allowed in Western Australia. Double stacking requires extra consideration to be taken when restraining loads.

Think Brick Australia does not recommend double stacking of masonry.

## REFERENCES

- [1] Safe Work Australia (2011). How to manage work health and safety risks Code of Practice. Canberra
- [2] Safe Work Australia (2015). GENERAL GUIDE FOR CRANES. Canberra.
- [3] Safe Work Australia (2015). HIGH RISK WORK LICENSING FOR VEHICLE LOADING CRANES INFORMATION SHEET. Canberra.
- [4] Safe Work Australia (2014). GENERAL GUIDE FOR INDUSTRIAL LIFT TRUCKS. Canberra.

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# DELIVERY ON SLABS

## KEEPING YOUR WORKERS INFORMED

Does the site store slab specifications?

Are there appropriate signs for slab limitations on site?

Have workers been briefed about loading on slab restrictions and planned deliveries?

## FOR EACH DELIVERY

How long since the slab was cast? \_\_\_\_\_

At the time of delivery, has the slab setting condition been verified by an engineer to be able to take loads?

How heavy is the load? Has the slab been verified by an engineer to be able to take such loads? \_\_\_\_\_ kN/m<sup>2</sup>

Will the delivery be placed on a supported area of the slab? (If not, make sure that loads, including past deliveries and other tools and materials, have been evenly distributed across the slab.)

How long will the load remain on the slab? \_\_\_\_\_

What machinery are you using to load the blocks? Do you have a qualified safety operator?

Is your Health Safety Environment manager nearby to monitor the loading?

Do you intend to double-stack the packs and/or pallets and is this approved by an engineer?

Is there enough space (vertically and horizontally) for the load lifting and placement?