Vehicle standards information

11

Revision 3.1 / Published 1 November 2007

Requirements for the movement of buildings

Scope

The requirements set out in this information sheet apply to the movement on public roads of conventional buildings originally designed to be erected on site and with no design consideration being given to possible future movement.

The requirements do not apply to the movement on public roads of buildings having frames which are suitably braced and sufficiently stiff and strong to perform the function of a vehicle chassis. Quite different equipment to that used for transporting conventional buildings is used for this purpose.

Contents

1. Previous information issued

The General Class 1 Oversize (Load Carrying Vehicles) Notice 2007 (the Notice), is an essential reference for those who move buildings. The Operators Guide sets out requirements relating to movements which are in excess of normal dimensions and mass limits.

2. Registration and permits

a) Registration

i) Prime movers and low loaders:

These vehicles must be registered in the normal way. No special arrangements exist for these vehicles for moving buildings.

ii) Equipment for the transport of buildings:

Components peculiar to the building transport industry such as bolsters, goosenecks, beams and dollies are usually assembled in different combinations to suit the various buildings they carry. Because each assembled combination is only *temporary*, its registration is usually dealt with under *unregistered vehicle permits*. These permits are available from any Motor Registry.

b) Permits

If the vehicle exceeds the vehicle dimension limits as published in Vehicle Standards Information 5, then an *overdimension permit* is required. Refer to the Notice.

An overdimension permit can be issued where the vehicle and its loading meets the requirements of the Notice and this Vehicle Standards Information No. 11. This requirement must be certified by the applicant in the permit application. In addition, an engineering certificate issued by an RTA Recognised Engineering Signatory indicating the identification number and the load rating of the bolster, gooseneck and dolly, and the specific manner of safely restraining/securing the building to the vehicle must be presented. Vehicle Standards Information 15 gives a list of Engineering Signatories recognised by the RTA.

The following information must be directly stamped on a prominent location on the equipment or on a durable non-corrosive metal plate affixed in a prominent location on the equipment:

a. the Engineering Signatory's code
b. certification report number
c. equipment identification number
d. date of certification
e. load rating

Note: a, b, and c must be combined together as a single unique identification number
eg: JBS1234BR

JBS	1234	BR
3 character identification code assigned by the RTA to each signatory (usually the signatory's initials).	certification report number	BR, DR or GR for bolster, dolly or gooseneck rating.

- additional information may be included such as make, model, manufacturer etc.

Should the vehicle exceed the standard axle weight limits, application must be made for an **Indivisible Mass Permit**. The table below sets out the maximum axle mass limits available under an indivisible mass permit for various axle widths on a housemoving trailer fitted with *two rows of eight tyres* (two axles, eight tyres and loadsharing suspension), with axle width being the distance between the outer edge at the point of ground contact of the two outer tyres on an axle.

AXLE GROUND CONTACT WIDTH (metres - outer edge at ground contact of the two outer tyres)	AXLE GROUP MASS SCHEDULE (tonnes)
2.4	19
2.6	19
2.8	20
3.0	21
3.2	22.5
3.4	23.5
3.6	25
3.8	26
4.0	27
Greater than 4.0	27

Overdimension and Indivisible Mass Permit applications are made on the same form. Information on all aspects of these permits can be obtained from:

The Permits Unit
Roads and Traffic Authority
PO Box 97
Glen Innes NSW 2370
T 1300 656 371
F 1300 361 570
E special_permits_unit@rta.nsw.gov.au

Where the journey involves routes outside the RTA's jurisdiction, application(s) must be made to the relevant local Council(s) or other road owners.

ALL PERMITS AND ENGINEERING SIGNATORY CERTIFICATES MUST BE CARRIED IN THE VEHICLE AND PRESENTED TO AN AUTHORISED OFFICER OF THE RTA OR THE POLICE WHEN REQUESTED.

3. Mass of buildings and building transport equipment

Where actual weighing is not possible, operators may undertake an approximate method of estimating the mass of the building and building moving equipment in the absense of certified weighing devices. However, the RTA will not absolve the operator from the responsibility for overloading and its consequences should the actual laden mass be determined by certified weighing devices and found to exceed permissible limits.

4. Vehicle, component, pavement and bridge ratings

Building movers are reminded that they, like all other road users, are not permitted to exceed the Engineer's or the manufacturer’s vehicle or component load ratings. This includes axle load, wheel, tyre and coupling ratings and the manufacturer’s gross vehicle and combination mass ratings for any hauling vehicle used.

Beams must have adequate capacity to carry the load. They must also be long enough to cover the full length of the load. Beams joined or welded together must be certified by an Engineering Signatory.

The load rating of the system is the lesser of the ratings listed in (a) to (d) below:

a) **Pavement and bridge load limits**

The limits for pavement and bridge protection are enforced under the Roads Act, 1993. Load sharing suspensions are required to maintain practically equal axle loading within the one axle group even though the height of the road surface may vary between axles within the same group.

b) **Tyre load ratings**

These are specified in the Tyre and Rim Association Australia Standards Manual. The ratings per tyre for common sizes are:

	Single	**Dual**
6.50 x 16 LT x 10 ply rating	1030kg	975kg
8.25 x 16 LT x 14 ply rating	1700kg	1600kg
8.25 x 15 x 14 ply rating	1850kg	1750kg

c) **Axle and wheel load ratings**

Where the axle or wheel manufacturer's ratings are known to be lower than those of the tyres fitted, then that lower rating will prevail.

d) **Other components**

Any other components such as main beams, suspension or prime mover couplings which limit the safe working load capacity of this group of components.

5. Connections between vehicle components

a) General

Connections between all components must be secure and remain so at all times and under all loads imposed throughout the road journey. Vehicles with insecure connections between components will not be allowed to continue a journey until these connections are secured. The coupling between the prime mover and house moving trailer must be made with components that comply with Australian Design Rule (ADR) 62/00 "Mechanical Connections Between Vehicles".

b) Gravity

Connections which are held together only by gravity are not acceptable. To prevent detachment when travelling over bumps, positive means of holding such components together are required.

c) Chains

Chains are not an acceptable means of securing any part of the following connections between major building moving vehicle components:

- Couplings to bolsters;
- Bolsters to goosenecks;
- Goosenecks to beams; and
- Beams to dollies.

Connections between the above listed components must be securely welded, bolted or clamped.

d) Bracing

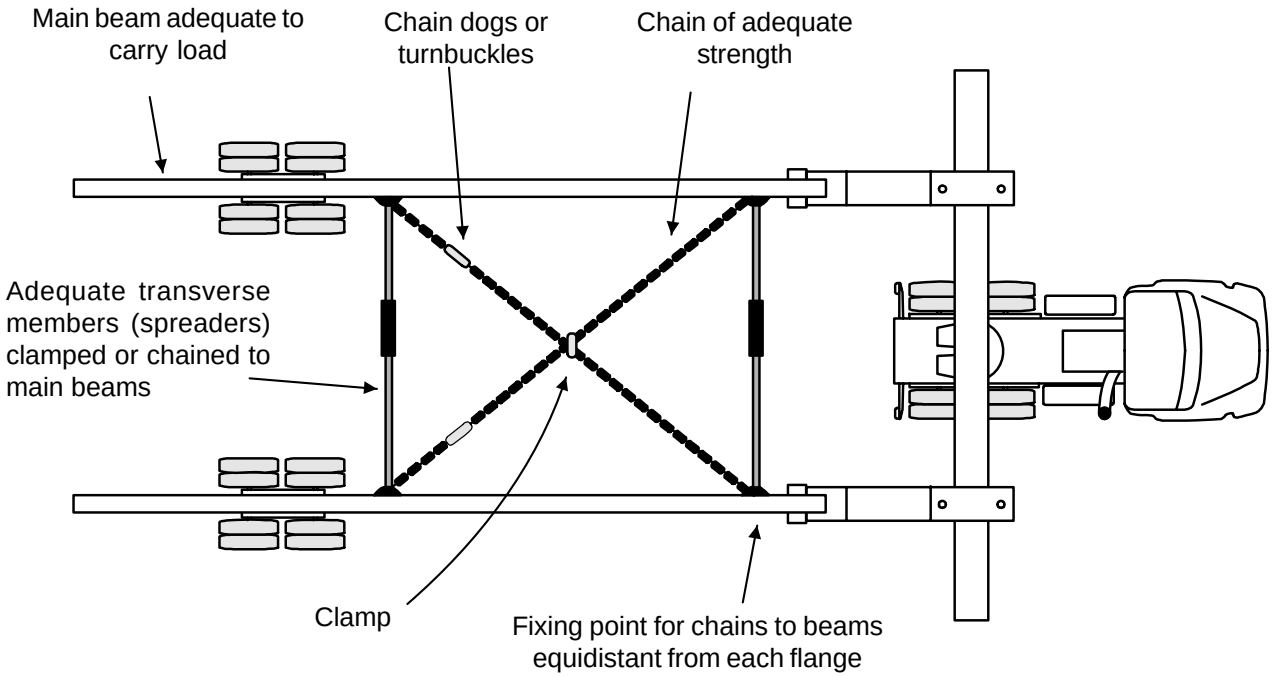
Unless braced, the equipment commonly used for moving buildings can be easily pulled out of alignment. Should some of the wheels be held back by an obstacle such as a kerb, without bracing, one beam can be easily dragged ahead of the other.

If not diagonally braced to resist these loads, heavy bending moments can occur at the joints between such components as the bolster, goosenecks and beams, which will cause distortion and/or failure. There is also a strong possibility of damaging the load.

Braces diagonally connecting one beam to the other must therefore be fitted to hold the components concerned in their correct relative positions and so prevent one beam being dragged ahead of the other.

Provided they are of adequate strength, are adequately secured and correctly tensioned, chains are acceptable for braces of this kind.

As these braces tend to draw the main longitudinal beams together, wherever they are fitted, transverse members must also be provided and secured to hold these beams the desired distance apart. These transverse members should be positioned at or near the brace attachment points to minimise bending loads and must be securely bolted or clamped in position.

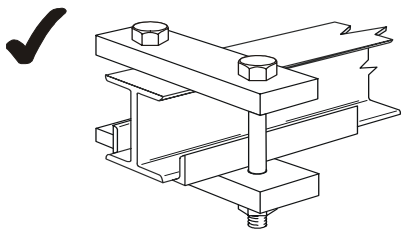


e) Clamps

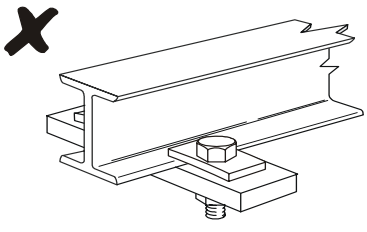
Clamped connections **should** be closed (pushed together) rather than opened (pulled apart) by any force or moment acting on the connection due to gravity and the clamp bolts should add to that closing force.

Any clamped connection used between house moving vehicle components **must** be as follows:

- Of the “straddle” or “bridge” type where the components clamped are held in position by the “straddle” or “bridge” between not less than two bolts (Type A).



Type 'A ' Bridge type clamp held by at least 2 bolts



Type 'B' Single bolt clamps not acceptable

- Clamps using only one bolt are not acceptable (Type B).
- Each clamp bolt must be at least 30mm in diameter.
- All clamp bolts must be secured by some means of preventing bolt and nut rotation

6. Damaged or distorted equipment

Any vehicle component which has suffered permanent deformation beyond its original designed form is not acceptable for further use until repaired. This includes all couplings, bolsters, goosenecks, beams, dollies, and equipment used to join these components together, as well as clamp components.

7. Braking

a) The prime mover must have effective brakes fitted to all of its wheels as per the requirements of the Road Transport (Vehicle Registration) Regulation 2007 and the ADRs.

b) Brakes are required on all wheels of the trailer axle groups and must at least comply with the intent of the requirements of ADR 38/--, *Trailer Brake Systems*. In this regard, the ADR specifies that if the trailer is to be driven at speeds greater than 50 km/hr the braking system must comply with all the performance and equipment requirements in the ADR. Notwithstanding this requirement, in all cases the service braking system must be capable of stopping the vehicle combination and its load from a speed of 30km/hr to rest within a distance of 14 metres.

c) Brakes must be effective and controllable from the prime mover, of the two line compressed air/ mechanical type, with spring applied/air released parking, emergency and breakaway braking. **Electric brakes are not acceptable** for this purpose as they do not have satisfactory long term holding capability.

d) The trailer parking brake must be operable either automatically or manually when the trailer is disconnected from the hauling vehicle. While attached to the hauling vehicle, the parking brake may operate in conjunction with the hauling unit parking brake. The parking brake system must be capable of holding the laden trailer stationary on an 18% incline.

8. Lighting

Although permitted to move on public roads on unregistered vehicle permits, building movers are reminded that on all journeys the following lighting equipment is required to be fitted on the trailer or load being moved:

a) **Required functions**

i) Stop signals.
ii) Turn signals.
iii) Rotating yellow beacons or flashing lights fitted at the highest point of the building as required by the "*Operators Guide"* and journey permits. Where an escort vehicle is required, the lead escort's rotating beacons may be masked for 90^{o} of the rear sector to avoid glare affecting the vision of the driver of the following prime mover hauling the building.
iv) Clearance/side marker lights.

b) **Light type and orientation**

All lights and reflectors, even though temporarily attached to the vehicle or load concerned, must be of normal automotive type and mounted in their correct orientation.

c) **Wiring**

The wiring to these lights must be:

i) Securely attached to the vehicle or load in such a way that conductors and insulation are not chafed, stretched or disconnected by vehicle movement during transit,
ii) Joints between conductors must be securely crimped, screwed or soldered together (mere twisting together of wires is not acceptable). Plugs and sockets may be used if of automotive standard appropriate for the electrical loads involved. Domestic wiring plugs and sockets are not acceptable, and
iii) Adequate electrical supply must be available at every light bulb for clear, bright illumination at the bulb designed voltage.

9. Moving unladen equipment

For transport by road when unladen, equipment for moving buildings must be dismantled and carried as loading on registered vehicles unless the overall length, width and height of the assembled equipment and any carrying vehicle involved remains within normal Regulation requirements. **If the load on the registered vehicle is in excess of normal dimensional limits, a journey permit is required.**

Trailing of unladen building moving equipment in unregistered form is not permitted.

10. Use of low loaders

If a low loader float is used for moving a building, then:

a) The load must not project more than one metre rearward of the low loader bed, unless supported by longitudinal beams of adequate strength and rigidity, and

b) The load must not project more than one metre on each side outboard of the low loader bed, unless supported by transverse beams of adequate strength and rigidity. In the case of extendable floats, this projection will be measured from the extended width.

Unless specially supported, normal 2.5 metre wide floats are limited to carrying buildings no more than 4.5 metres wide.

11. Security of load

Building movers are reminded that:

- it is their responsibility to ensure that the building is safely restarined and secured to the house moving trailer or the vehicle combination (refer to item 2b, page 2).
- the building is structurally stable.
- no part of the building or anything contained inside it is likely to become detached during transit (ie. panels, roofing materials etc.).
- the travel speed during the journey should not exceed the maximum design wind speed of the building (if in doubt about the maximum wind speed design of the building obtain advice from an engineer).
- loads must be restrained to prevent unacceptable movement during all expected conditions of operation.


For further enquiries:

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