

PRODUCTION RISK ASSESSMENT INVENTORY

manual to the checklist

This manual is connected to a Production Risk Assessment Inventory document made by Marijke Voorsluijs for Van Baasbank & Baggerman. It gives additional information to the issues mentioned in the checklist (Part III of the document). Numbers are the same as the numbers in the checklist.

1 General Information

This is about the clearness of responsibilities in general.

2 Safety during setup and strike

As far as personal protection is concerned, helmets are not being used yet (except for under extremely dangerous conditions), but steel toe shoes are mandatory and common. This is a good example of personal protective equipment provided to minimize a residual risk.

3 Safety during rehearsal and show

The theatre will inform the company about the emergency exits and the place of fire extinguishing materials. The company needs to be cooperative in finding a solution not to block any of these. If good quality ground plans are provided, the company can plan this beforehand, if not it needs to be discussed upon arrival or during setup as soon as a problem emerges.

Falling over cables running loose on the stage or in the auditorium is an example of a risk of tripping.

If there is any special risk or hazard for the audience, it is wise (or mandatory, depending on the risk) to make an announcement. The theatre will usually do this by putting up signs at the entrance.

4 Working at heights

This is an issue that gets special attention from the government. Protective measures need to be taken to prevent people from falling, because too many accidents have happened.

If the working height is more than 2.50m over ground (stage) level, there needs to be a rail at 1.0m and one at 0.5m from the feet. The lowest 0.23m must be closed.

For working heights lower than 2.25m the same kind of safety measure is recommended, although not mandatory. A reasonable effort must be made to avoid accidents.

Only when the use of f.e. a rail (a collective protective measure) is impossible, personal protective measures (such as harnesses etc.) can be used instead.

The rules for the strength of a floor that people walk on are the same as for the construction of a house: 400 kg/m². As soon as people jump or dance on a floor, it must be strong enough to hold 750 400 kg/m².

5 Set

All the materials used in the set must be flame resistant, or treated with flame retarder that is appropriate for that material. As a proof, certificates must be presented on request.

If electricity is used on metal parts of the set that touch the stage or that get touched by the actors (for example metal wall with lights on top) an earth line is mandatory, and instructions should be given about what to do in case of electrocution.

If engines are used on stage, the amount of fuel is limited to the amount used in the show, and a permit needs to be obtained from the local fire department.

The main law that applies to theatre rigging is the European Machine Directive (1997).

Companies and theatres need to show that all the rigging materials (wire-ropes, shackles, slings, etc.) are certified and have their working load limit marked onto them. Touring companies are supposed to know the weight of their set and the strength of the rigging materials. The weight of the different elements of the set must be indicated on the parts.

Of course all parties are responsible for their own material: the theatre for their flying system and other equipment, the touring company for their set. But if a company wants to hang something that is not sufficiently safe in legal terms, the theatre staff is responsible (and held liable) as well. So the equipment of the company will be checked carefully by the theatre and/or the producer. In some cases the theatre will say no, but will normally be helpful to find an alternative solution. In the case of a foreign company touring in the Netherlands, the producer plays an important role in this.

It's important to know that although the industrial safety factor (on which standard certificates are based) is 1:5, in the Dutch theatre business 1:10 is maintained when rigging overhead systems. This is in general accordance with German 'VBG-70' theatrical safety legislation, that exists since 1974. So if a wire-rope sling that is certified for 1000 kg is used in the theatre, the limit is 500 kg.

Actually rigging a person overhead is a different subject again. A safety factor of 1:18 as a minimum is maintained for all materials involved (appearing from certificates), and an extra safety line is necessary apart from the line that holds the person. When people move higher than 2 metres over ground level, a safety line (life-line, fall arrest, ...) needs to be attached.

Theatre rigging certificates have not been approved by government officials yet. Until that time qualification is measured by years of experience and/or appropriate education.

An example of a safety measure taken to protect actors during fly movements of the set is that they know the cues, and that the technicians don't perform the movements without seeing the stage.

6 Props

If weapons are used in a show, no matter if they are real or fake, a permit must be obtained from every local police department. To get this permit, a detailed description and/or a picture of the weapon is required, plus a specification of what is done to make sure it won't fire. If the weapon is real, a certificate from the owner is required.

Import of weapons without a government permit is forbidden; trying it means taking the risk of losing the weapon and paying a fine, or even going to jail.

It may well be just as easy to rent a weapon for the tour. Weapons for use in the entertainment industry can be rented from specialized agencies.

7 Orchestra pit

Of course this only applies when it is being used. An example of a measure to protect persons from falling into the orchestra pit is to put white or fluorescent tape or little lights on the edge of the stage.

8 Costumes

The discussion about flame resistant costumes is still going on. It is likely that this will only be required if fire is used near the actors.

The comfort of the actors needs to be considered when choosing the costumes.

9 Lighting

Electrical equipment that companies bring will for sure be checked by a producer's technical staff and/or local electricians. The standards in the Netherlands are not different from the European ones.

The safety factor for safety steels on spotlights is 1:10.

10 Sound

As a general rule, the use of personal protective equipment (i.e. the wearing of hearing protectors) is compulsory in the case of a sound level above 85 decibels. But whether or not a sound causes hearing damage also depends on the duration, the general feel of the space, and on the distance between the person and the source.

The document speaks about a level high enough to damage hearing. Damage can be expected if a person is exposed to a certain sound pressure level longer than a certain time.

A general guideline:

SPL (continuous)	maximum exposure
80 dB(A)	8 hours per day
83 dB(A)	4 hours per day
86 dB(A)	2 hours per day
89 dB(A)	1 hours per day
92 dB(A)	30 minutes per day
95 dB(A)	15 minutes per day
98 dB(A)	7.5 minutes per day
101 dB(A)	4 minutes per day
120 dB means pain.	

When in doubt, get the dB meter out. Most theatres have got one. Do give the staff a listen during the soundcheck to what you'd like to do, and decide together. In case of disagreement, they decide, and you are in trouble if you play louder during the show than during the soundcheck.

If high sound levels are used in the show that could cause inconvenience or damage the hearing of the audience, it's wise (if not necessary) to announce this before the show.

11 Special Effects

If fire effects are being used in a show, the theatres will need to get permits from their local fire department. A company must provide a written specification about the effect and all the materials and chemicals involved. No matter if it is a candle or fireworks: as soon as there is open fire, a permit is needed.

Fireworks in particular need to come with a certificate from the manufacturer and can only be handled by a person with the necessary licence. There are very few people in the Netherlands who are allowed to do fireworks in the theatre. Certificates obtained outside the Netherlands need to be approved by the Dutch authorities.

12 Tools and utensils

As a general rule, tools should be used for their own purpose. Exceptions to this rule need to be explained.

13 Physical conditions

The lifting of heavy weights is another theme that gets special attention from the government. The rules are the same as for construction workers: not more than 25 kg per person. (So it takes 10 technicians to handle a sound desk of 250 kg!)

Wheels are, of course, a magnificent way to make life easier.

Dancers and acrobats are an exception to this rule, because it's part of their job to lift up their partners.

14 Organization of the work

This is an issue about work pressure.

If workers have a certain autonomy, if clear information is given, if they get enough rest etc., work pressure is lower.

Rules about working times in the theatre are based on European standards. Since 1997 the law for Dutch theatre workers (and for foreign workers in Dutch theatres!) is as follows:

- Work on Sundays is allowed if necessary and/or agreed upon beforehand.
- Minimum of 13 Sundays free per 52 weeks.
- Minimum daily rest is 11 hours per 24 hours; 117 times per 52 weeks is a daily rest of 8 hours allowed, but only if the person gets 24 hours of rest after the 2nd shift.
- Minimum weekly rest is 36 hours in every 7x24 hours; 8 times per 52 weeks is 60 hours per 14x24 hours allowed.
- Maximum of 12 hours work per 24 hours, 72 hours work per week; average over 52 weeks no more than 40 hours per week.
- Minimum rest of 14 hours after night shift ending after 02.00 AM; 8 hours of rest allowed 1 time per week.
- Minimum rest of 48 hours after 3 or more night shifts (ending after midnight or starting before 06.00 AM) in a row.
- Maximum of 7 night shifts in a row.
- Maximum of 28 night shifts per 13 weeks.
- Maximum of 52 night shifts per 13 weeks if all night shifts end before or at 02.00 AM.

When technicians travel, the travel time is considered working time for drivers, but not for passengers.

15 Participants who require special attention

For children who work as artists, special working time rules have been made. These rules are not as strict as the general rules about work for children. In addition to this, children under 13 years older need a permit from the regional or national authorities ("Arbeidsinspectie").

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