LOW LEVEL WASTE REPOSITORY GUIDANCE FOR PLACING AND SECURING ITEMS WITHIN THE TC01,TC03, & TC09 LLWR IP-2 ISO CONTAINERS.

Summary

Subject to the foregoing this Guidance Note should be read in conjunction with the LLW Repository Ltd IP-2 ISO Container Operational Documentation. Notwithstanding any other term of this Guidance Note, this Guidance Note is intended only to support the Container Design Operational Documentation by explaining the basis of the conditional requirements and providing additional information. Nothing in this Guidance Note shall be legally binding upon the Operator of the LLW Repository Ltd and all Terms and Conditions between such Operator and the Customer for the use of the LLW Repository Ltd IP-2 ISO supplied containers. In the event of any conflict between the provisions of the Guidance Note and any LLW Repository Ltd IP-2 ISO Container Design Approval Conditions, the Container Design Approval Conditions shall prevail in all respects.

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From	**To**	
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Introduction

This document has been prepared to provide guidance on how to secure items within LLW Repository Ltd IP-2 ISO Containers TC01, TC03, and TC09. This guidance document has been written due to the operational change in the reuse of the containers in line with the package and handling instructions for the TC01, TC03 and TC09 ISO containers [1].

In addition to securing of items this guidance note provides guidance on completely filling the foot print of a container by the placing of items and waste boxes

LLWR have produced standard loading plans for securing items within the LLWR range of containers. This can be conducted by using the lattice base as a load bearing structure for the anchoring of items or filling the container completely with items so no movement can occur. These loading plans have been produced using the methodology presented in this guidance note. The loading plans are detailed within the schedules of this guidance note and can be used by customers for securing boxes within LLWR containers. Users are not required to provide calculations to demonstrate that waste boxes and items are adequately restrained as LLWR have conducted calculations for the standard loading plans. The calculations are available from LLWR on request. In all other instances calculations will be required to be submitted to LLWR to demonstrate that structural strength of the grid lattice is not exceeded as defined in section D2.

PART A – General

A1 If the item is treatable waste then a Waste Loading Plan (WSC-FOR-WLP rev 1) shall be written and approved **prior** to any loading of the waste commencing. This includes any calculations associated with load securing and centre of gravity of the container.

A2 When a loading plan is required the process defined in section H of this guidance note shall be followed.

A3 This guidance note shall only be used in conjunction with the applicable LLWR Package and Handling instructions for the LLWR IP-2 ISO containers[1].

A4 When completely filling a container with waste boxes or items, any gaps between the waste boxes or items should be filled with suitable chocks (e.g. high density wood, metal plates). Further details on filling a container are shown in section Part G

A5 To restrain items using the containers lattice grid requires access to the container cavity. A risk assessment should be carried out prior to personnel entering the container cavity to ensure safety of operators.

CAUTION – SEAL PROTECTION SYSTEMS SHOULD BE DEPLOYED WHEN ENTERING OR LOADING CONTAINERS

WARNING– A TEMPORARY FLOOR SHOULD BE PLACED OVER THE GRID LATTICE WHEN OPERATORS ARE REQUIRED TO ACCESS THE CAVITY OF THE CONTAINER.

A6 In order for items to be secured to the base lattice grid of the container, one of the following options must be satisfied;

A6.1 Item(s) must be able to protrude through the lattice grid to prevent longitudinal and latitudinal movement during transport. Web lashing straps must be used to anchor the item to the base grid lattice to restrain the item in the vertical axis

A6.1.1 The item must have a minimum of two substantial protrusions that will fit into the lattice grid.

A6.1.2 There shall be sufficient amount of protrusions not to exceed the chocking values in D2. If there are not sufficient amount of protrusions additional chocks will be required.

A6.1.3 The protrusion shall be strong enough to withstand the chocking forces seen during normal condition of transport

A6.1.4 Items may be strapped together in order to have sufficient protrusions.

CAUTION - WRAPPING OR TAPING OF ITEMS TOGETHER FOR RESTRAINT PURPOSES IS NOT PERMITTED.

A6.2 If an item has no protrusions, the item can be chocked to prevent any movement of contents during transport in the longitudinal and latitudinal axis. There shall be sufficient amount of chocks not to exceed the chocking value in D2 and to prevent rotation of the item when subjected to acceleration forces under normal conditions of transport. Lashing straps must be used to anchor to the item to the base grid lattice. This will restrain the item in the vertical axis and prevent overturning.

A6.3 If an item has no protrusions and has suitable anchor points it should be restrained using straps anchored to each upper corner of the item and lashed to the base grid lattice assembly, to prevent any movement in all three axis during transport subject to the angle of the strap being between 45 to 60 degrees to the horizontal An example calculation for this arrangement can be found in Appendix 1. It is recommended that chocks are used for this arrangement in addition to the strapping.

A7 Use of friction mats is not permitted for securing items by friction lashing. Friction mats may be used but no credit can be taken for these, due to the fact that forces during normal conditions of transport may act in all directions at once. Friction values are difficult to quantify and may be zero if the applied vertical acceleration is sufficient to overcome gravity effects. Therefore friction shall be ignored and can only be regarded as a bonus providing an additional but unquantifiable margin of safety.

PART B – Information for items required to be restrained

B1 The following information shall be available for the items to be loaded in the container:

- Mass of each item
- Envelope dimensions
- Location of the centre of gravity
- Lifting points
- Securing points and rating (if any)
- Material item constructed/fabricated from

PART C – Securing equipment

C1 Web lashing straps

C1.1 To ensure the container lattice grid integrity is not impaired, the recommended strap lashing capacity is **1 tonne** if direct lashing (A5.3) is used, and **2 tonnes** (A5.1 and A5.2) if over the top lashing is used.

C1.2 All straps used to secure items shall be designed to BS12195-2:2001[2] and have the following information marked on them

- Lashing Capacity
- Standard Tension Force
- Webbing Material
- Length
- Manufacturer
- Manufactures Traceability Code
- Year of Manufacture
- Standard Number

C1.3 Before using the lashing straps they shall be checked to ensure the webbing has no cuts or is frayed and that all stitching is sound. If any damage is present then the strap shall not be used.

C1.4. The lashing straps shall be protected against friction, abrasion and damage from loads with sharp edges by using protective sleeves and/or corner protectors.

C1.5 Prior to fitting any straps over the item(s), lashing straps must be fixed to the lattice grid (see section F)

C1.6 Metal snap hooks or equivalent are recommended to be used to secure lashing straps together.

Figure 1 Example of a metal snap hook

CAUTION - STRAPS WITH HIGHER LASHING CAPACITIES THAN 1TE FOR DIRECT LASHING OR 2TE FOR OVER THE TOP LASHING SHALL NOT BE USED WHEN SECURING ITEMS TO THE LATTICE AS OVER TENSIONING WILL CAUSE DAMAGE TO THE CONTAINER.

C3 Ratchet tensioner

C3.1 Ratchet tensioners shall be in a sound condition and functioning properly. If the ratchet tensioning device is faulty this shall be discarded and a replacement device used.

C3.2 It is recommended that ratchet tensioners with force indicators are used to ensure the straps are not over tensioned.

C3.3 Hand force (500N max) is only permitted when tensioning the strap. Mechanical aids such as levers, bars etc. as extensions are not to be used unless they are part of the tensioning device.

C4 Eye bolts

C4.1 Eye bolts may be used on waste items, where the waste item has tapped holes. An assessment will be required to show that the thread of the holes used can withstand the forces imposed from strapping.

C4.2 Eye bolts shall be rated for the load they are intended to carry and be CE marked.

C4.3 It is recommended that eye bolts shall be of a type that can be orientated to avoid excessive stress on the eye bolts

C4.4 Eye bolts can be used as attachment points on purpose built stillages.

CAUTION EYE BOLTS RATING DECREASES WHEN THE ANGLE BETWEEN THE HORIZONTAL AND THE SECURING DEVICE DECREASES. THIS SHOULD BE TAKEN INTO ACCOUNT WHEN SECURING AN ITEM.

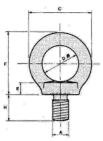


Figure 2 Example of an eye bolt

PART D - Anchor points

D1 Figure 3 shows the locations that can be used to secure straps to the lattice grid. There are 48 anchor point pairs that can be used to secure items in the container. Appendix 2 shows the dimensions of the lattice grid.

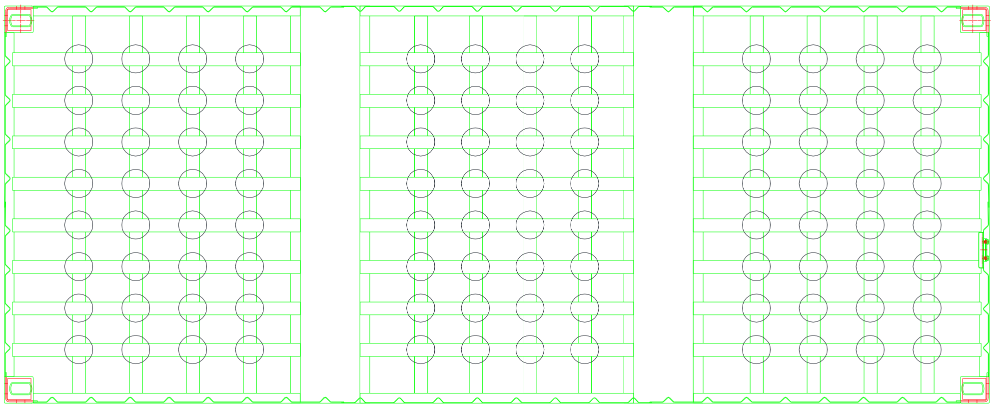


Figure 3 Container Anchor Points (Note - Location of anchor points denoted by the circles)

D2 Each anchor point can take a maximum 800kg [3] load in the vertical direction to an angle of 75 degrees to the horizontal. A calculation will be required if the angle is less than 75 degrees. In addition, the metal strip can take a maximum of 800kg [3] load in the lateral direction acting through a chock restraint.

PART E – Preparation for securing or placing of items

E1 When planning the loading and securing of the items within the container the following must be observed:

E1.1 All items must be loaded so that the centre of gravity of the container is as central as possible. No more than 60% of the load can be place along half the length of the container. Where possible items shall be placed centrally within the container.

NOTE: THE CENTRE OF GRAVITY IN THE LONGITUDINAL AND LATERAL DIRECTION OF EMPTY TC01, TC03 AND TC09 CONTAINERS IS MIDWAY ALONG BOTH AXIS.

E1.2 If not apparent the centre of gravity shall be calculated to ensure the criteria in E1.1 is met.

E1.3 Any objects that may cause point loading on the walls of the container shall be placed in such a way as not to damage the container walls. For further information on protecting the container end and side wall see section G.

CAUTION: WHEN CHOCKING ITEMS IN PLACE CARE SHOULD BE TAKEN WHEN CHOCKING BETWEEN ITEMS AND THE WALLS OF THE CONTAINER. IT IS NOT PERMITTED TO POINT LOAD THE WALLS OF THE CONTAINER. THE CHOCKING SHALL BE OVER A SUFFICIENTLY LARGE AREA TO AVOID DAMAGE TO THE

CONTAINER WALLS. EXAMPLES OF UNACEPTABLE CHOCKING INCLUDE USE OF SOFT COMPACTABLE WASTE, GRAVEL, SOIL, PIPES, SCAFFOLD POLES AND FLAT PLATES THAT ARE LYING PARALLEL TO THE CONTAINER FLOOR.

E2 The loading and unloading sequence must be considered for ease of access and removal of the items in the container

E3 Purpose designed stillages, cradles and chocking can be secured to the grid lattice. A Full engineering justification is required to be provided to LLWR to prove that they will not fail during normal conditions of transport. See TCSC 1006[4] and TCSC 1079[5] for further guidance on stillage design.

PART F – Securing items to the lattice grid of the container

F1 There shall be sufficient number of lashing straps to ensure that the container lattice grid retains its integrity (See section D2).

F2 Suitable chocks shall be placed between the item and the lattice grid (for example high density wood) to ensure the items cannot move laterally or longitudinally within the container.

F3 Figure 4 show how to secure the lashing straps to the lattice grid in the lateral direction of the container

F3.1 First thread the lashing strap with triangular connection ends through under the flat metal strip. Then thread the strap over the angled metal and back under the metal strip on the opposite side. Take the two ends of the strap and thread these back through the loop of strap that is over the angle, to form a choke hitch around it. Pull the strap tight to ensure the slack is taken up.

F3.2 Repeat F3.1 for the opposite anchor point with a second ratchet strap.

F3.3. Fit a ratchet strap with snap hook ends over the item. Fix the one of the hooks of the ratchet strap through the triangular connection of the strap attached to the grid lattice. Conduct the same for the second anchor. Tighten the straps by using the ratchet tensioners, using hand force only.

F3.4 The straps shall be protected from sharp edges using corner protectors or suitable edge protection.

F4 For direct lashing to items conduct F3.1 and F3.2 prior attaching the lashing straps to the anchor points on the item.

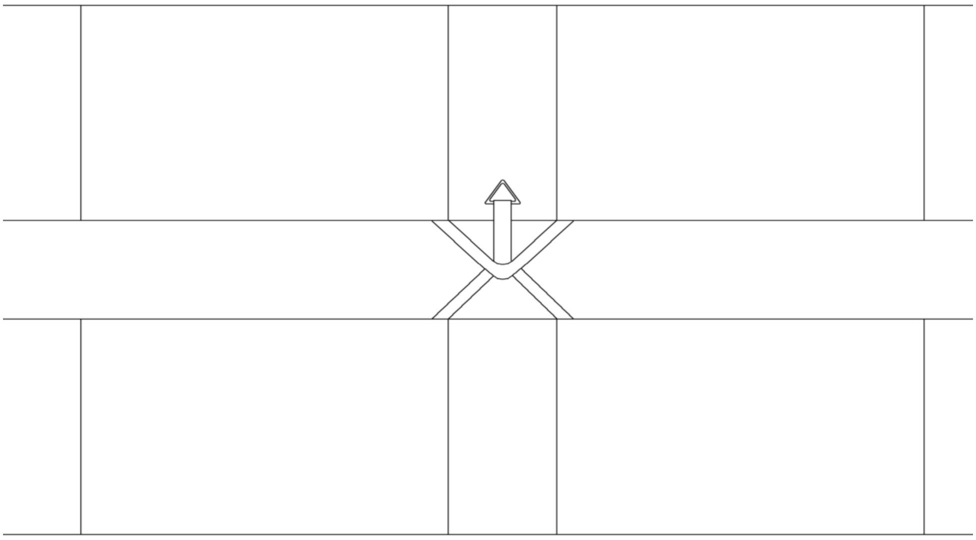


Figure 4 Securing the strap to the lattice by choke hitch, viewed from above.

NOTE: THE STRAPS ARE ONLY USED FOR SECURING THE ITEMS IN THE VERTICAL DIRECTION. NO CREDIT CAN BE GIVEN FOR THE ARRANGEMENT SECURING THE ITEM IN THE LATERAL AND LONGITUDINAL DIRECTION, UNLESS THERE ARE STRAPS AFFIXED DIRECTLY TO THE ITEM ON EACH SIDE/CORNER AND AT AN ANGLE OF 45 TO 60 DEGREES FROM THE HORIZONTAL.

NOTE: ONLY ONE STRAP IS PERMITTED PER METAL STRIP/ANGLE LOCATION ANCHOR POINT. MORE THAN ONE IS NOT PERMITTED AS THIS COULD DAMAGE THE CONTAINER. IF THE ITEM CANNOT BE SECURED BY SUFFICIENT NUMBER OF STRAPS AN ALTERNATIVE SECURING METHOD MUST BE USED AND ADVICE MUST BE SOUGHT FROM LLWR LOGISTICS SERVICES TEAM.

F5 Appendix 1 shows a sample calculation for securing an item to the lattice grid by strapping and chocking. Derivation of the load values was by a Finite Element Analysis detailed in the Reference [3]

F6 When a heavy item with small footprints are to be secured within the container it may be necessary to build a frame around the item to ensure sufficient chocking locations are able to be used. The frame shall be capable of withstanding the forces induced by the accelerations see under normal conditions of transport. An example of this is shown in the sample loading plan in Appendix 3.

F7 It is not sufficient to have an item with a single strap in either the lateral or longitudinal direction even if the calculations show that one strap is sufficient. The item shall have a minimum of two straps at either end of the item to counter any overturning moment that the item may encounter during normal conditions of transport. This applies to both the lateral and longitudinal directions.

PART G – Placing items into the container

G1 Items may be placed within the container providing the container footprint is filled. There shall be no spaces between items. As items will not have the ability to turnover the requirement for vertical restraint by strapping is not required.

G2 The following material can be used as filler material between items
- High density timber
- Flat plates (place horizontally to the container walls)
- Steel beams (square/rectangular hollow sections, I-Beams and angle)

G3 Where items to be removed by the consignee and have no dedicated lifting points lifting straps shall be left in situ when the items have been loaded.

G4 When loading a container with circular items, for example drums, the sides of the container shall be protected by a suitable material such as plywood. Note for multiple shipments the wood can be reused provided it has not become damaged during transport.

NOTE FOR OVERSEAS SHIPMENTS WOOD WILL NEED TO BE TREATED AND HAVE RELEVANT CERTIFICATION.

G5 The use of air filled dunnage bags as engineered restraints in the longitudinal or lateral direction is not permitted.

G6 Vertical restraint is not required if the container has been fully loaded with items. Where single items are to be transported within a container and there are not sufficient strapping locations for vertical restraint, it is possible to chock the item in the container. The chocking shall be up the corner posts of the container. The chocking shall be at least up to the height of the centre of gravity of the item. It is not permitted to have no vertical restraints and have chocking that is lower than centre of gravity of the item as this will not hold the item in place. See TCSC 1006[4] for further information on the use of chocking without vertical restraint. Figure 5 shows an example of a loaded container using the chocking method.

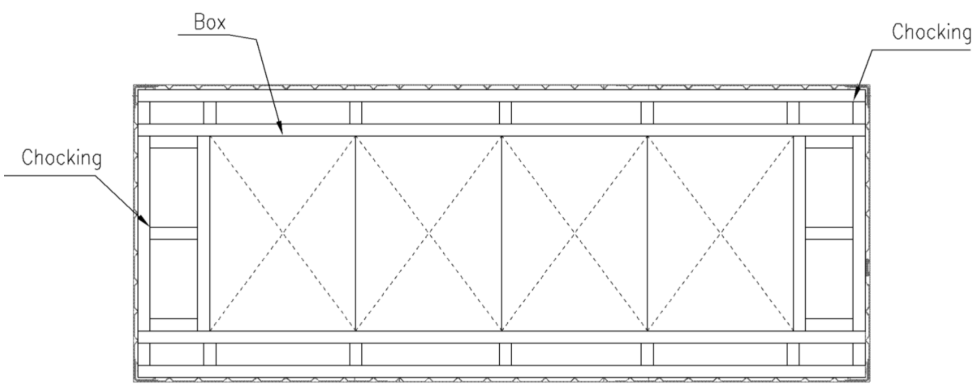


Figure 5 Container filled with boxes and chocking, view from above container.

PART H – Loading plan process

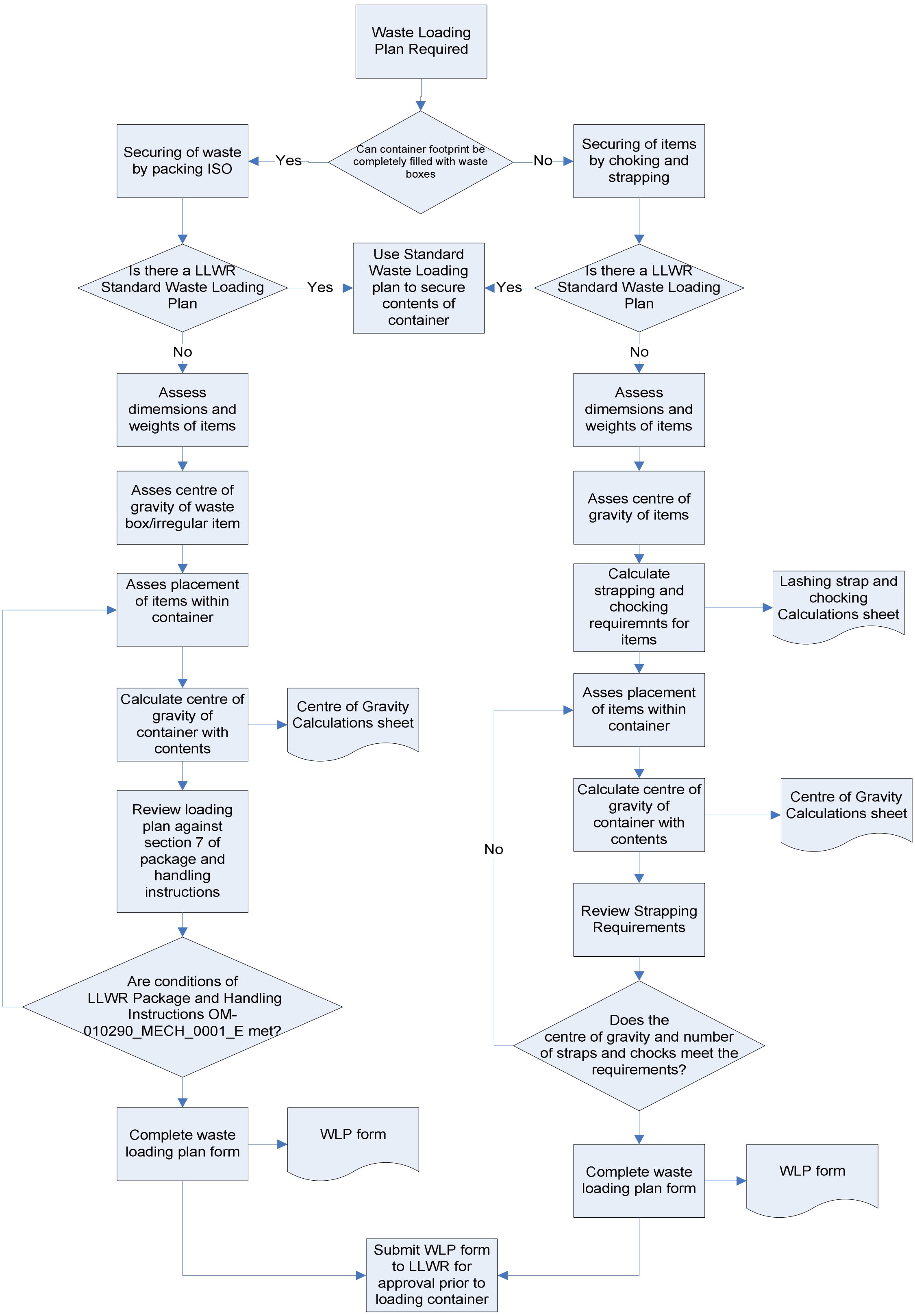


Figure 6 Loading plan process

When reviewing items that are to be loaded into a container the process shown in Figure 6 shall be followed to ensure that all aspects of the loading plan generation is covered.

Sample loading plans can be provided by LLWR upon request.

PART I – National and International Guidance Documents

There are several national and international guidance documents relating to securing of cargo within ISO containers. It is recommended that personnel that undertake cargo securing and container loading shall familiarise themselves with this guidance:

1. ILO/IMO/UN ECE Guidance for Packing of Cargo Transport Units (CTU) 1997
2. IMO Code of Safe Practice for Cargo Securing and Securing (CSS Code) 2003 Edition
3. Code of Practice – Safety of Loads on Vehicles, Department for Transport, 2002
4. European Union Best Practice Guidelines on Cargo Securing for Road Transport. EC, 2008
5. BS5073 Guide to stowage of goods in freight containers
6. Container Handbook, GDV – German Insurance Association 2003

The above documents provide good advice for loading and securing of contents within containers however it must be noted that the acceleration values used in these documents are for standard cargos. For radioactive material the acceleration values stated in Appendix IV of the Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material TS-G 1.1[6] must be used. It should also be noted that some of the above documents take friction into account, this is not acceptable for transport of radioactive material as mentioned in part A7.

PART J References

1. Package and Handling Instructions for the TC01, TC03, TC04, TC06 and TC09 ISO containers, OM_010290_MECH_00001

2. BS EN 12195-1:2003 Load restraint assemblies on road vehicles - Safety – Part 2: Web lashing made from man-made fibers.

3. LLWR Calculation CA/LLWRGR/PROJ/0002

4. Transport of Radioactive Material Code of Practice, The Securing/Retention of Packages on conveyances TCSC 1006 December 2003.

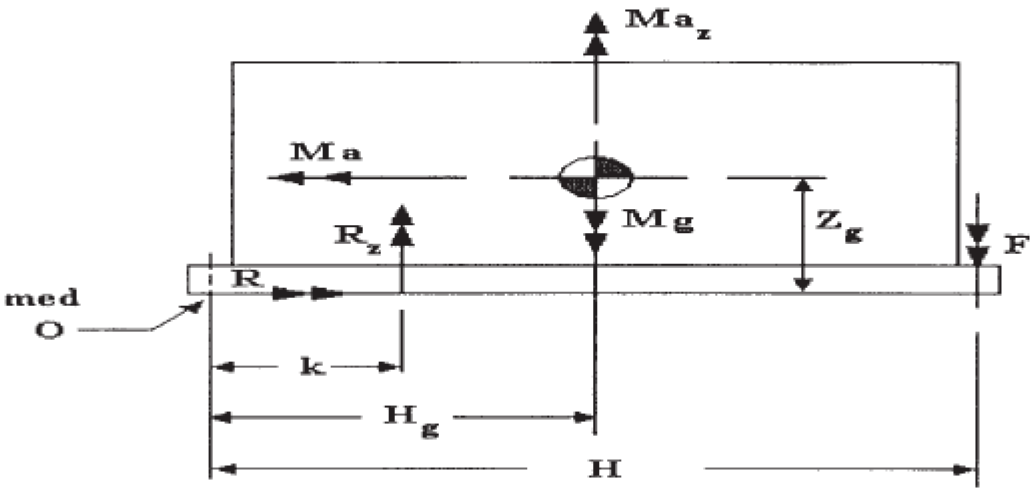
5. Transport of Radioactive Material Code of Practice – Lifting Points for Radioactive Packages TCSC 1079 June 2003

6. Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material TS-G 1.1 2008

Appendix 1 Sample calculations

A.1 Lashing over a cuboidal box

Dimensions (L x W x H): 2200mm x 1400mm x 1005mm



Definitions (refer to diagram above)

M is payload or mass of package, kg.
F is resisting force at the strap, kg.
g is gravitational constant = 9.81 m/s².
*a*x is acceleration along a horizontal axis x = 2g.M m/s².
*a*y is acceleration along a horizontal axis y = 2g.M m/s².
*a*z is acceleration along the vertical axis z = 2g.M m/s².
a is acceleration in a horizontal direction, *a*x or *a*y, m/s².
e is horizontal distance from lashing point to box = 230 mm.
H is distance between pivot point and the farthest lashing point from the pivot point = 2000 mm approximately lengthwise if only lateral straps are used, or (2200 + e) = 2430 if straps are required in the forward direction and (1400 + e) = 1630 mm for pivoting sideways*
*H*g is distance from pivot edge to centre of gravity = (2200/2) = 1100 mm approximately lengthwise and (1400/2) = 700 mm for pivoting sideways.
*Z*g is vertical distance from the base to centre of gravity = 670 mm (2/3 of the height).
φ is angle between lashing point and horizontal plane, = arctan(1005/230) = 77 degrees minimum.

The box pivots about point O

*Refer to drawing 0 NF 1840681. The strapping points are at the angles which are welded to the base of the container.

Lashing Forces

Following Reference [2], Section 4.4.2, from a summation of moments:

Resolving the forces vertically: $M.a_z + R_z = M.g + F$
Resolving the forces horizontally: $M.a = R$

Taking moments about O results in: $R_z.k + M.a_zH_g + M.a.Z_g = M.g.H_g + F.H$
At breakaway, k tends to zero, and the equation reduces to:
$M.a_zH_g + M.a.Z_g = M.g.H_g + F.H$

Gathering up terms and rearranging gives: $F = [M\{H_g(a_z - g) + Z_g.a\}]/H$

Hence, the maximum load in each strap along the side furthest from O, and the pivot edge A–A, is: $Tp = F/(n. \sin\varphi)$,

where n is the number of straps or lashing points that resist the overturning load

Substituting F gives: $Tp = M[Hg (az - g) + a.Zg)] / (n. \sin\varphi.H)$

If the strap angle is greater than 75 degrees (as here) the $\sin\varphi$ factor reduces to approximately 1. Also az = a = 2g and so:

$Tp = M.g[Hg + 2.Zg)] / (n.H)$

The maximum Strap Load, S, in kg, is defined as Tp/g

Now we wish to use only sideways lashing if possible, where n would be limited to 2 and the pivot to lashing point distance would be shorter. However it may be necessary to add additional straps from front to back, therefore there are 3 load cases to consider.

<u>Case 1: vertical acceleration plus tipping from lateral acceleration</u>

$S.g = M.g \times (700 + 2 \times 670)/(n \times 1630)$

Therefore, $M= 0.8.n_s.S$, where n_s is the number of side straps.

And so: $n_f = 1.25.M/S$

<u>Case 2: vertical acceleration plus tipping from forward acceleration, with only sideways straps</u>

$S.g = M.g \times (1100 + 2 \times 670)/(n \times 2000)$ if lashing is only lateral, so n can only be 2.

Therefore, $M = 0.8.n_s.S = 1.6.S$

<u>Case 3: vertical acceleration plus tipping from forward acceleration with extra forward straps</u>

$S.g = M.g \times (1100 + 2 \times 670)/(m \times 2430)$ if additional forward lashing is required

Therefore, $M = 1.n_f.S$, where n_f is the number of forward straps

Following the guidance from reference [1], Appendix IV, section IV28, by taking account of the geometry, we will assume tipping can only occur across either one or other direction but not both at the same time to avoid the overly conservative method of superimposing them. We will combine Cases 2 and 3 though to reduce the total number of forward straps. That is:

$M = 1.6.S + n_f.S$

And so: $n_f = (M – 1.6S)/S$

This assumption is balanced by the fact that all of the side straps will be resisting the load to some extent under a forward tipping load, though the calculation to include the effect of these extra restraints is statically indeterminate.

Now since the FEA calculation, reference [3], used S = 800kg vertically and 800 kg horizontally combined to give a maximum equivalent stress of less than 275 MPa on the welds, i.e. acceptable, we can use these two equations to calculate the number of straps in each direction required to restrain each large box.

Table 1: Sample of number of straps required

Payload, M kg	Minimum required number of side straps, n_s	Minimum required number of forward straps, n_f
1000	2	0

Chock Force

From Reference [2], Section 4.4.2, The total force on one side of chocks under a lateral acceleration load, $R = M.a/m = 2.M.g/m$ in either direction, where m is the actual number of chocks resisting the load. Defining $S = R/g$ and rearranging gives:

$M = 0.5.m.S$

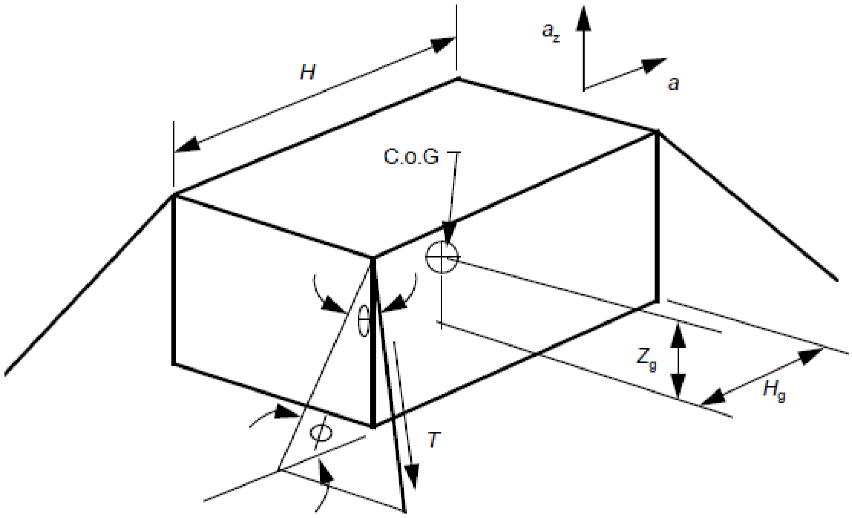
The FEA used a lateral load of 800kg. Hence M = 400.m

Table 2: Sample of number of chocks required

Payload, M kg	Minimum required number of chocks in both directions
1000	3

A.2 Direct lashing to a cuboidal box

Dimensions (L x W x H): 2200mm x 1400mm x 1005mm



Definitions (refer to diagram above)

M	Payload or Mass of package kg.
g	Gravitational constant = 9.81 m/s².
a_x	Acceleration along a horizontal axis x = 2g.M m/s².
a_y	Acceleration along a horizontal axis y = 2g.M m/s².
a_z	Acceleration along the vertical axis z = 2g.M m/s².
a	Acceleration in a horizontal direction, a_x or a_y, m/s².
H	Distance between pivot point and the farthest lashing point from the pivot point.
H_g	Distance from pivot edge to centre of gravity = H/2 (assumed).
Z_g	Vertical distance from the base to centre of gravity = 670 mm (2/3 of the height)*.
θ	Angle between tie and vehicle in plane of *a*, = 30 degrees.
φ	Angle between tie and plane of *a*= 60 degrees.

Equation below from Ref[2] section 4.4.2 when Tp is the force in the strap in Newtons.

$Tp = M[H_g (a_z - g) + a.Z_g)] / (2.\cos\theta.\sin\varphi.H)$

To find the allowable mass the configuration can take based upon a maximum anchor force of 800kg

The maximum Strap Load, S in kg, is defined as Tp/g

Therefore:

$S.g = M[H_g (a_z - g) + a.Z_g)] / (2.\cos\theta.\sin\varphi.H)$

Using the above equation for the combined vertical load upwards and forward overturning moment, (H=2200, H_g=1100, φ=60, θ=30):

S.g = M (1100 x 9.81 + 2 x 9.81 x 670) /(2 x cos30 x sin60 x 2200) = 7.25.M

Repeating for the combined vertical load upwards and lateral overturning moment, (H=1400, H_g=700 φ=60, θ=30):

S.g = M (700 x 9.81 + 2 x 9.81 x 670) /(2 x cos30 x sin60 x 1400) = 9.52.M

Hence the worst case is as follows:

M = 800 x 9.81/9.52 = 823 kg

So the maximum mass that may be secured using this method is 823 kg.

From Ref[2] section 4.4.1 The ties should be pre-tensioned to reduce shock loading and fatigue damage and it is strongly recommended that the package is chocked in all directions. Chock forces are the same as for Calculation A.1.

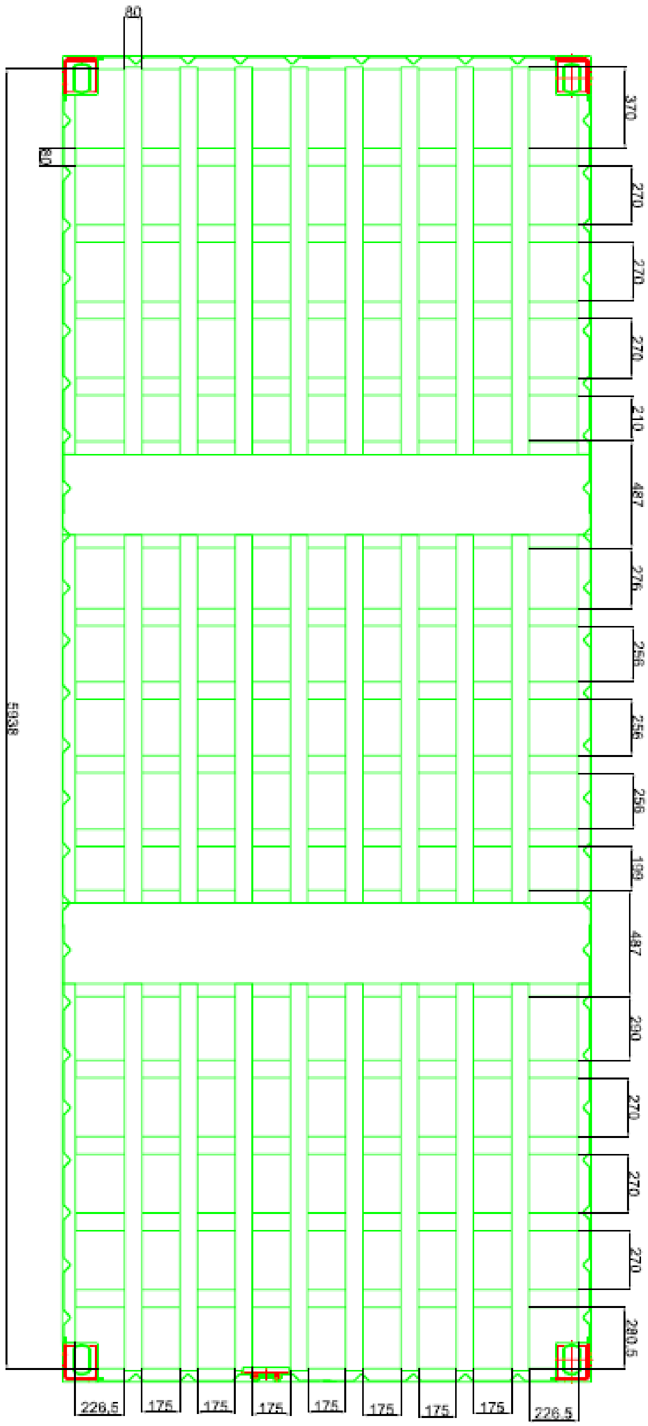
References

[1] T-S-G-1.1:2008, "Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material".

[2] TCSC 1006: 2003, "Transport of Radioactive Material Code of Practice: The Securing/Retention of Radioactive Material Packages on Conveyances".

[3] LLWR Calculation CA/LLWRGR/PROJ/0002

Appendix 2 Lattice grid dimensions



Appendix 3 PAA/GN04 Loading Plan Schedules

Number	Issue	Date	Description
PAAGN04/Schedule 1	1	23/09/11	Single 1/8 Berglof Box
PAAGN04/Schedule 2	1	23/09/11	Two 1/8 Berglof Box
PAAGN04/Schedule 3	1	23/09/11	Single 1/16 Berglof Box
PAAGN04/Schedule 4	1	23/09/11	Two 1/16 Berglof Box
PAAGN04/Schedule 5	1	23/09/11	1/32 Berglof Boxes
PAAGN04/Schedule 6	1	23/09/11	Type 800 Dolav Boxes
PAAGN04/Schedule 7	1	23/09/11	Type 1000 Dolav Extended Boxes
PAAGN04/Schedule 8	1	23/09/11	1/16 Berglof Box filled container
PAAGN04/Schedule 9	1	23/09/11	1/32 Berglof Box filled container
PAAGN04/Schedule 10	1	23/09/11	Type 800 Dolav Boxes
PAAGN04/Schedule 11	1	23/09/11	Type 1000 Dolav Extended Boxes