



CRI GUIDELINES FOR
Packaging Material and Palletisation
for the
2026 Citrus Export Season



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PREAMBLE

This set of guidelines is compiled specifically for Southern African Citrus growers to support them in following best practice in the supply of export product to their global customer base.

Other participants and/or stakeholders in the value-chain such as paper, carton, pallet and diverse packing material manufacturers, exporters, logistics service providers and importers/ receivers of Southern African citrus, are encouraged to support the growers to follow these guidelines with the objective to:

- Foster confidence in and promote the integrity of Southern African packed citrus products in the global export markets.
- Maintain the reputation of excellence in the presentation of Southern African products worldwide.
- Protect growers and other participants in the value chain against losses due to substandard packaging material.
- Promote good manufacturing and appropriate quality controls by packaging manufacturers.
- The CRI acknowledges the significant contribution Dawid Groenewald has made in compiling these guidelines over the years and information herein is largely based on his previous packaging guidelines.

IMPORTANT NOTES:

- *These guidelines have been developed through extensive historical engagement with participants in, inter alia, the CRI Postharvest Technical Forum and Packaging Working Group. The highly valuable historic contributions by the participants in these forums are gratefully acknowledged.*
- *It is intended that the guidelines will be updated annually, based on feedback and information on new developments and innovation options provided by packing material manufacturers and other role players in the citrus industry.*
- *The subscription to, and the use of these guidelines by manufacturers and growers, is done on a voluntary basis.*
- *Carton manufacturers and growers remain ultimately responsible for ensuring that the cartons they manufacture and/or purchase are of acceptable quality and conform to the health and safety standards required by target markets and legislation.*
- *The guidelines in this document are overarched by the statutory prescriptions in the Agricultural Product Standards as stipulated under section 4(3)(a)(ii) of the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990), regarding the quality of citrus fruit and the requirements regarding the packing, marking and labelling thereof.*
- *The guidelines do not address food safety aspects of packaging materials, which are addressed by the CGA's Consumer Assurance Portfolio.*

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1 Cartons

This section covers current best practices for cartons and bulk bins. Carton and bin configurations (or types/designs) have changed significantly over the past few years with exporters and their customers requiring specific parameters to set them apart or provide a competitive advantage in the marketplace.

Due to this, there are numerous different carton types (codes) available; however, most of these cartons (codes) make up an extremely small percentage of the total volume of fruit exported in a season. As such, please note that this is not an extensive guide that can cover every carton and bin used in South Africa, and that only the most commonly used cartons and bins, which account for the majority of fruit exported, are discussed in this document.

Should there be any queries relating to any cartons or bins that are not discussed herein, please contact the CRI.

1.1 Paper and Board

Corrugated cartons are manufactured from corrugated board. The board generally consists of paper liners that are glued to a fluted medium in a continuous process using a starch adhesive. When discussing corrugated board, the terminology shown in **Figure 1** is commonly used, where MD refers to the machine direction or making direction and CD refers to the cross-direction (across the width of the corrugator). The ZD is the out-of-plane direction (thickness/calliper) of the board.

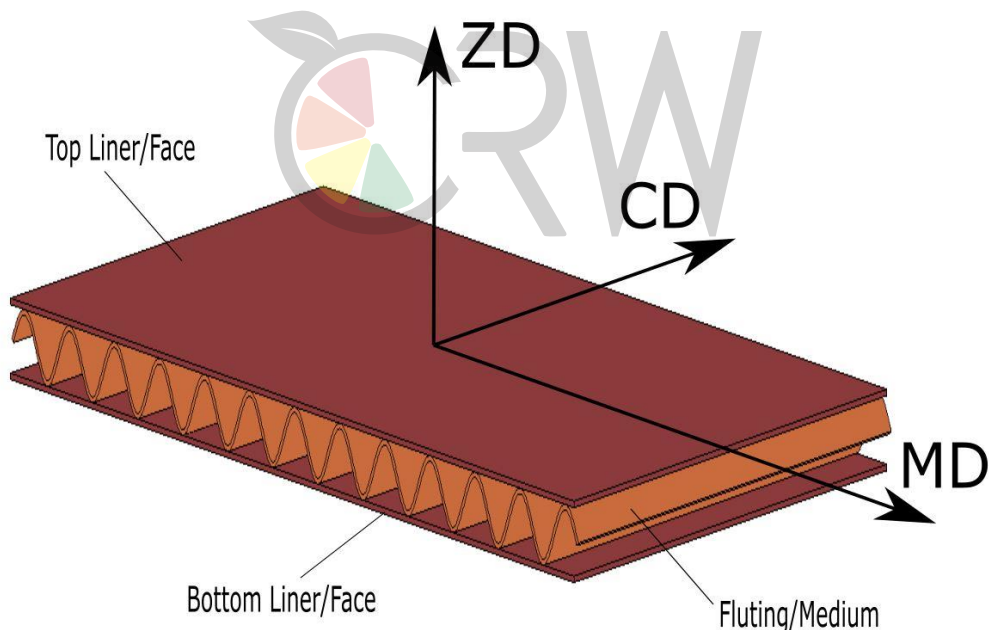


Figure 1: Diagram highlighting the terminology used to describe corrugated board.

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1.1.1 Liners, Fluting and Board Construction

In the citrus industry, predominantly C flute single wall board (SWB) is used for telescopic outer cartons and BC flute, double wall board (DWB) is used for the telescopic inner cartons and the open display cartons. A diagram showing the difference between DWB and SWB is shown in **Figure 2** noting that DWB will have a middle liner and an extra layer of fluting. Note that triple wall board (TWB) can also be used for carton construction, if in line with best practices.

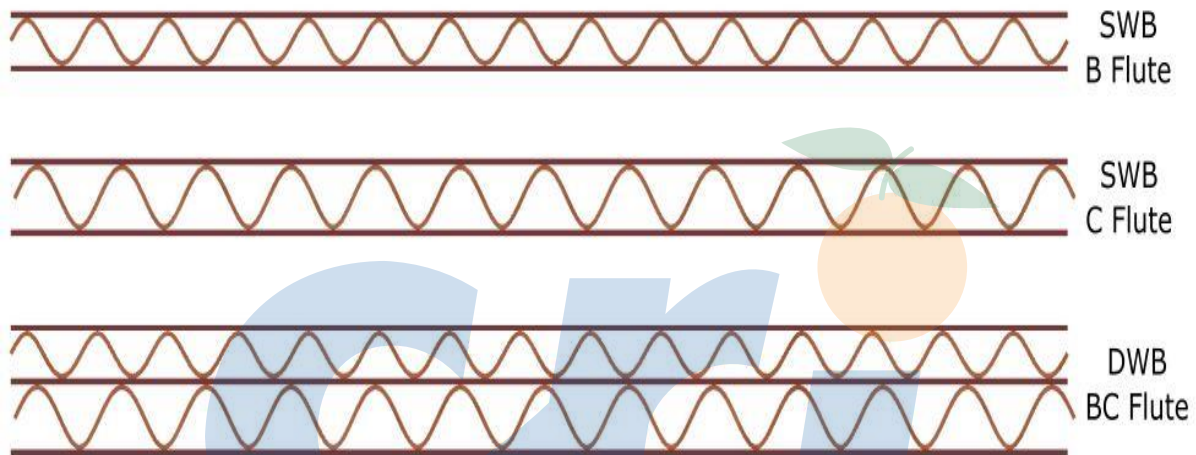


Figure 2: Diagram highlighting the difference in SWB and DWB board construction.

As can be seen in Figure 2, the B and C flute boards have different fluting profiles. The terminology used to describe the flute profile is shown in **Figure 3**.

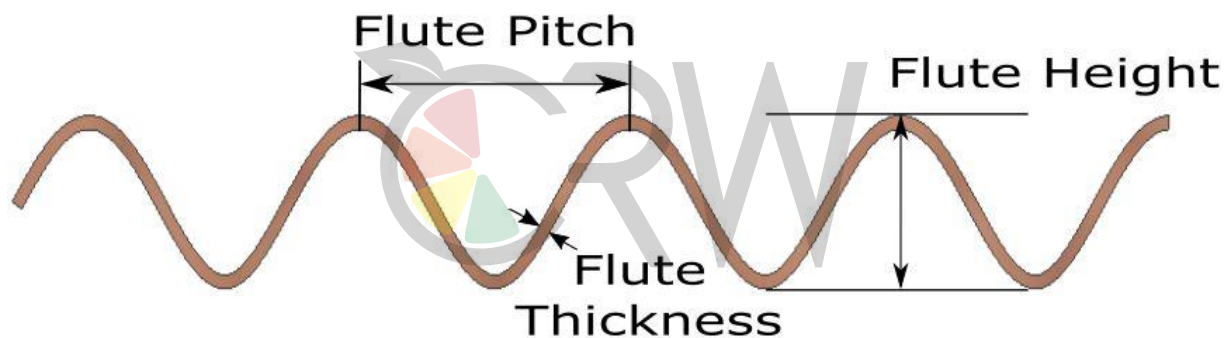


Figure 3: Terminology used to describe flute profiles and geometry.

An important aspect of board manufacture is the fluting take-up factor. For a 100 mm length of liner, you need to use more fluting due to the flute profile, and this is referred to as the take-up factor. This is highlighted in **Figure 4**, noting that the factors shown will vary slightly depending on the corrugator rolls used by the different carton manufacturer.

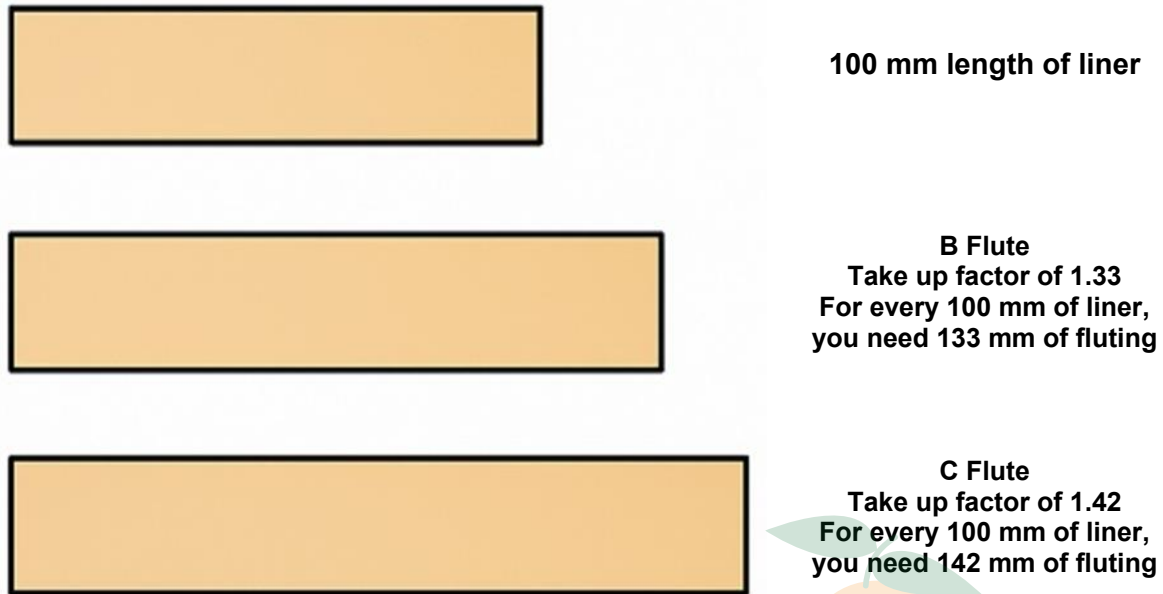


Figure 4: Diagram showing the take-up factors of different flute profiles, noting that these factors depend on the rolls used by the corrugators and may vary slightly from the values shown.

Paper used for carton manufacturing is commonly sourced from local (RSA) paper suppliers, whilst some carton manufacturers have reported successful use of imported paper. Notwithstanding whether local or imported paper is used, experience to date has shown that all export cartons should be manufactured with either Virgin Kraft and Virgin White Top liners, virgin middle and inner liners and Semi-chemical fluting. The fluting must essentially be free from abrasive constituents and of such a nature that it does not crack during the corrugating process. Virgin Kraft refers to paper that is manufactured from pulp that is chemically pulped and manufactured using a Kraft process. It usually has at least 85% virgin fibre content. Semi-chemical fluting refers to paper that is made using both a mechanical and chemical pulping process. It typically has over 75% virgin fibre content.

It is also highly advisable that double-wall corrugated board of “B” and “C” flute construction be used for all the carton types listed in this document. Adherence to the board properties shown in Table 1 is advised.

Other corrugated board profiles and any other new designs can, at this stage, be considered as experimental, and growers are encouraged to engage specifically with their manufacturers to ensure that appropriate in-practice test processes and load capacity determination are followed before they extensively use these “experimental” cartons. Please contact the CRI should any new carton trials be undertaken.

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Table 1: Suggested board properties.

	Board Type (Flute Combinations)		
	Double Wall board (B & C)	Double Wall Board (B & E)	Single Wall Board Outers (C)
Minimum calliper of unprinted board (mm)	6.5	5.1	3.9
Maximum allowable difference between the calliper of printed and unprinted areas of board (%)	5.0	5.0	5
Ply adhesion (N/m)	400	400	400
Maximum Cobb_{5min} value (g/m²)	80	80	80
Minimum FCT Value (kPa)	-	-	250

1.1.2 Carton Types

The Citrus industry uses two major carton styles, namely telescopic cartons, consisting of an outer carton (or lid) and an inner carton (base), Figure 5, and open display cartons, Figure 6 .



Figure 5: Image of a telescopic carton consisting of a lid and a base carton.



Figure 6: Image of an open display carton.

The dimensions of the cartons accounting for over 85% of all cartons exported in 2025 are shown in Table 2. Dimensions of other carton designs are included in Appendix B. Note in Table 2 that the dimensions of the E15D and E16D cartons are exactly the same, but the carton code was modified to represent an increased mass of fruit. The longest dimension of the carton will always refer to the length of the carton when viewed from the top.

Over the past years, some carton manufacturers have developed their own open display carton designs. Due to the confidentiality of the various designs, it is not possible to include all the designs/die drawings in these guidelines. Should you require more strength from your open display cartons or improved ventilation, please contact your carton supplier. The CRI can also be contacted in this regard for additional support and guidance.

Table 2: Carton Dimensions.

Carton Code	Length (mm)	Width (mm)	Height (mm)	Description
<i>D10D</i>	500	300	160	Open Display
<i>D15D</i>	600	400	160	Open Display
<i>E10D</i>	500	300	170	Open Display
<i>E15D / E16D</i>	600	400	170	Open Display
<i>F15D</i>	500	400	190	Open Display
<i>A15C-S2</i>	400	300	270	Telescopic
<i>E15C</i>	600	400	170	Telescopic

The use of loose end-pieces is of utmost importance for hand-erected cartons and individual manufacturers should be consulted for end-piece best practice for machine-erected cartons. Graphic designs are considered a matter to be determined by the grower or exporter in consultation with their customers and manufacturer/s.

1.1.3 Mass Load at Failure

Mass load at failure, commonly measured by a Box Compression Test (BCT), is considered an important measure of a carton's strength and gives an indication of a carton's ability to withstand the rigorous handling and atmospheric conditions experienced from the packhouse gate through to the warehouse of the customer in the export market.

Growers are encouraged to engage with their manufacturer/s to ensure that the manufacturer regularly runs and records for inspection by the grower, an atmospherically controlled BCT test on all batches of cartons manufactured.

The target BCT values, or maximum load at failure, shown in **Table 3**, have been confirmed in practice as sufficient for exports to a wide range of markets from a wide range of locations in southern Africa.

Table 3: Suggested BCT target values for selected carton styles.

Carton Code	BCT (kg) after conditioning at 32 °C ± 1 °C and 87% RH ± 1%RH for 24 hours
D10D	750
D15D	875
E10D	750
E15D / E16D	875
F15D	800
A15C - S2	600
E15C	875

BCT target values for several other carton styles and designs are available. For further information, please contact the CRI.

2 Bulk Bins

Bulk bins for fruit export can either be manufactured from plastic or corrugated board. Although the industry was notified in Cutting Edge 401 (Bulk Bin Ventilation for EU) that the J40P plastic bulk bin is allowed for export to EU markets, it must be clearly stated that it is from a ventilation/cooling and market access point of view, due to its superior ventilation and cooling compared to the corrugated paper board bulk bin. However, the performance of the J40P plastic bulk bin has not been commercially evaluated by CRI, and therefore it has not been included in the 2026 CRI Guidelines for Packaging. As such, this section will deal with corrugated board bins. Should you be interested in plastic bins or collapsible plastic bins, please contact the CRI as well as your local manufacturer/supplier.

As with the corrugated board described in 1.1.1, it is recommended that all bulk bins be constructed from virgin liners and semi-chemical fluting. As such, the properties shown in **Table 1** apply to the board used for bulk bin construction as well. Note that, generally, due to the load-carrying requirements of the bin, bins are generally constructed from heavier board combinations than those typically used for cartons.

2.1 Bulk Bin Dimensions and Designs

The dimensions of the bulk bins generally used for citrus export are shown in Table 4. Note that the dimensions of the cores will largely depend on where the been sourced from (this is normally from the paper reel cores supplied to the corrugators). It is recommended that the minimum core thickness should be 8 mm with a diameter

of 76 mm, however, ideally, a 102 mm diameter core with a 10 mm wall thickness or bigger should be used.

Table 4: Bulk bin dimensions (all dimensions in mm).

<i>Code</i>	<i>Length</i>	<i>Width</i>	<i>Height</i>	<i>Core Diameter</i>	<i>Core Wall Thickness</i>	<i>Core Height</i>
<i>J38B</i>	1190	986	525	76/102	8/10	510
<i>J50B</i>	1190	986	870	76/102	8/10	855
<i>J60B</i>	1190	986	960	76/102	8/10	945

For more information on bin design, please contact the CRI or the respective corrugator/manufacturer/supplier.

2.2 Bulk Bin Erection

In general, bulk bins are erected on a pallet and the cores are kept in place with plastic strapping. For this purpose, strapping with a minimum width of 12 mm strapping and a minimum, breaking strength of 180 kg is suggested. Note that the cores are not fixed to the bin and are generally constrained by the strapping and the fruit in the bin.

There are several different strapping methods that can be used. These methods are currently under review and once completed, guidelines on bulk bin best practice will be communicated to the industry.

The key recommendation at this point is to ensure that when the bin is strapped, the buckles do not cross through the middle of the bin, as this can damage the fruit (**Figure 7**).

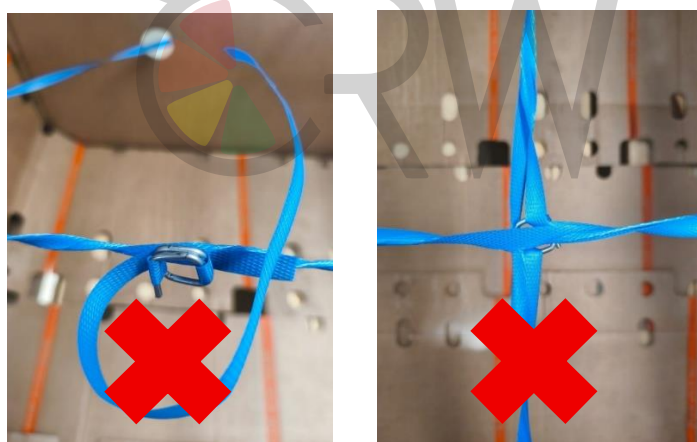


Figure 7: Buckles for tightening strapping in the middle of the bulk bin interior.

Note that whatever method is used, it is important that additional strapping be used to connect the bin to the pallet. Figure 8 shows a J60B bin, with strapping, the buckles on the exterior and strapping around the pallet base.

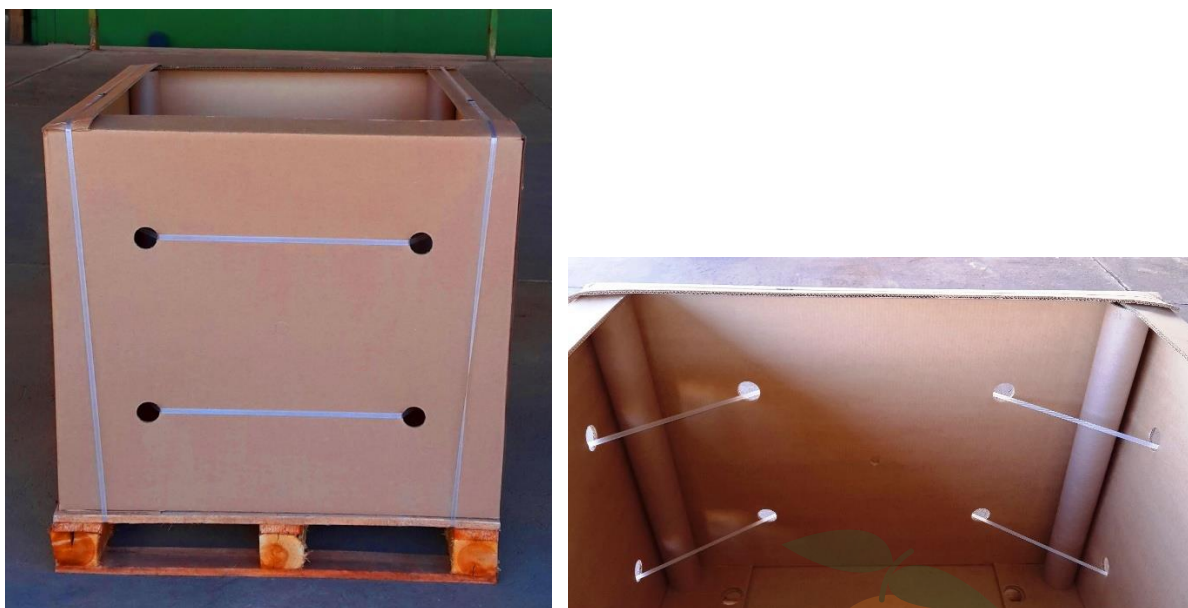


Figure 8: Photographs showing the basic design of a J60B bulk bin with strapping. Note this is one of many strapping configurations currently under review.

It is also considered good practice to place a securing sheet on the bottom of the pallet/bin. This will ensure good ventilation of the fruit and assist with stopping fruit from being forced out of the bottom of the bin.

2.3 Bulk Bin Stacking

Bulk bins can be stacked two or three high, depending on the original height of the bin. The J38 bin can be stacked three high (including pallets), whereas the J50B and J60B bins can only be stacked two high (including pallets).

2.4 Phytosanitary requirements

Packhouses should be aware that any wooden material, including dunnage, used to secure bulk bins should also comply with the ISPM regulation, which states that:

- Wooden dunnage in its raw state is not acceptable for export under phytosanitary concerns. Wood should thus be treated and marked according to methods prescribed under ISPM 15 regulation.
- Dunnage is wood packaging material used to secure or support a commodity; however, it does not remain associated with the commodity (ISPM 15).
- Dunnage includes items such as load boards, bracing within cargo containers, and other loose wood used in securing cargo during transit. For example:
 - Dunnage is often used on bulk bins when packing fruits, in marine vessels to stabilise consignment.

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- Brace cargo during ocean transport or stabilise the pallets inside the container.
- Role players need to choose the right type of dunnage material based on the items they ship to avoid non-compliance notifications from our trading partners regarding wood packaging material.

For more information on ISPM 15, please see section 5.4.



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3 Quality Control and Assurance

Citrus growers are encouraged to formally engage with their carton manufacturers to ensure that their cartons have been manufactured to strict quality control and assurance measures and that each batch of cartons comply to the specifications agreed upon between the grower and the manufacturer (the guidelines in the previous sections of this document could serve to assist growers with defining the specifications agreed upon with their manufacturer).

Growers are also encouraged to regularly visit their manufacturers to familiarise themselves with the operational processes employed and the quality control measures undertaken by the manufacturers.

Typical quality control and assurance assessments, audited by external parties, currently used by manufacturers include:

- ISO 9001:2015 – for the development, manufacturing, printing and conversion of corrugated packing and related products.
- BRCGS Global Standard Packing Materials

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4 Codes, markings and traceability

It is advisable that growers insist on the following markings - in order to ensure comprehensive traceability of cartons – especially for cases where claims for inferior standard packaging might arise:

4.1 Open top cartons

For identification purposes, a unique manufacturer's code should be printed on the business panel of the carton. A batch number must be printed on the bottom of each carton.

4.2 Telescopic cartons

For identification purposes, a manufacturer's code should be printed on the business panel of all outer components. A batch number should be printed on one of the inner flaps.

4.3 Additional Markings

Other markings typically stamped on carton bottoms include stamps indicating that the cartons have either a Quality Assurance Certification and/or an FSC mark, indicating materials from responsible sources, and confirmation of the use of lead-free printing ink.

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5 Wooden pallets

The quality of the pallets used during palletisation plays a fundamental role in the presentation and stable arrival of the product in the market. The use of a substandard pallet, or an incorrect pallet, can have significant consequences.

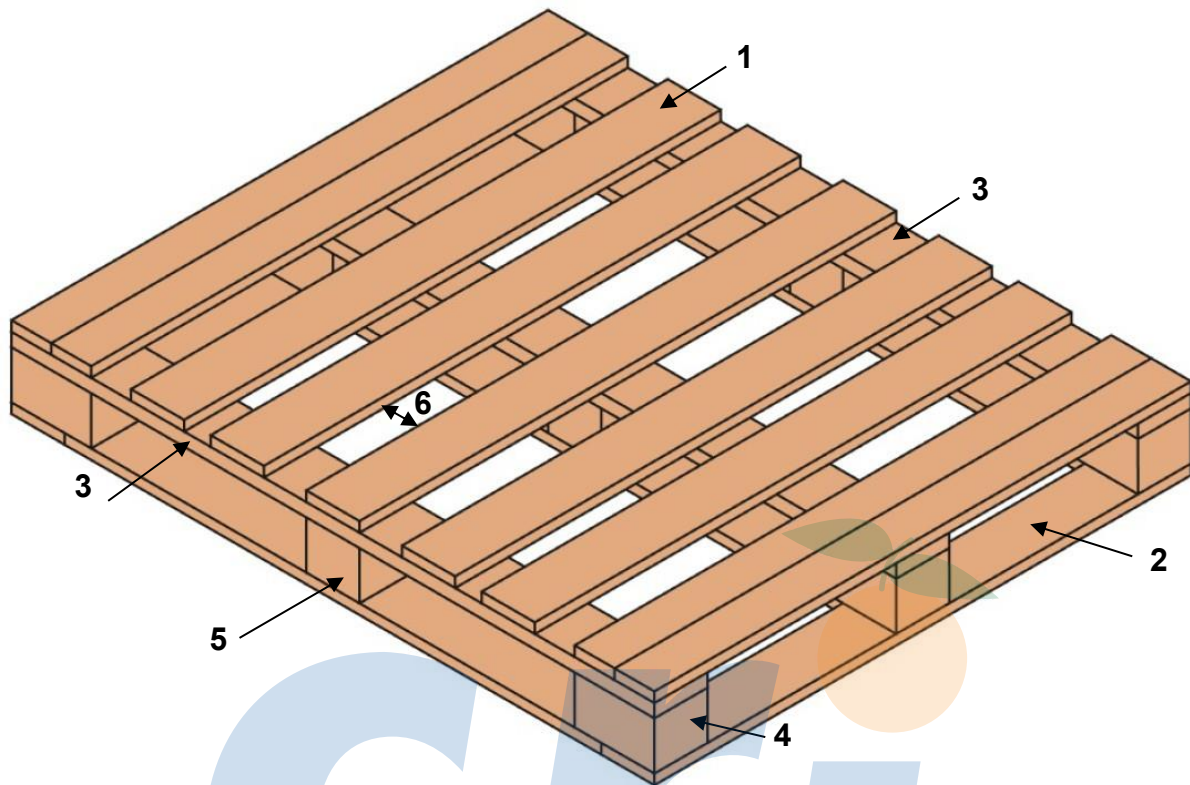
During the 2025 citrus season, it was noted that several different pallet designs were being used for citrus exports. Not all pallet designs are suitable for citrus export or compatible with the cartons packed on them. As a result, the CRI is undertaking an extensive review of pallets and will aim to produce a separate pallet guide for the industry in the future.

In the following sections, general best practices relating to pallets will be discussed and information relating to the statutory export requirements for pallets will be provided.

5.1 Pallet Terminology

Several interchangeable terms are used to describe the components of a pallet. For the purposes of this document, the terminology shown in **Figure 9** will be used.

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Label	Component	Alternate Terminology
1	Top Slat	Top Plank, Top Deckboard,
2	Bottom Slat	Bottom Plank, Bottom Deckboard,
3	Bearer	Stringer
4	Corner Block	
5	Centre Block	
6	Deck Spacing	Slat Spacing, Top Deck Opening

Figure 9: Diagram highlighting the terminology used for pallets in this document.

5.2 Wood quality

In general, citrus pallets are manufactured from two primary wood types, namely SA Pine and Saligna. For pallets, the wood density should be at least 400 kg/m³ at a moisture content of 12%. For SA Pine, no wood may have a moisture content exceeding 20% when used in constructing the pallet. The following dimensions and tolerances are suggested, based on BS EN 1246-1999.

Table 5: Suggested component tolerances taken from BS EN 12249-1999
(all dimensions in mm).

<i>Dimension</i>	<i>Tolerance</i>
<i>Thickness and/or width ≤ 100</i>	+1
	-1
<i>Thickness and/or width > 100</i>	+1.5
	-1.5
<i>Blocks cross-section</i>	+1.5
	-1.5
<i>Bearers' cross-section</i>	+1.5
	-1.5
<i>Component Length</i>	+0
	-2

Note that the overall dimensions and tolerances for the pallet are critical and overriding, irrespective of the tolerances permitted for individual timber components below.

The following should also be adhered to:

- All components should preferably be finely sawn i.e., a smooth cut with little evidence of splinters/debris on the wood edge.
- No discolouration, which may taint the fruit, is allowed.
- Wood showing signs of any living organisms must be rejected.
- A maximum wane of 25% on any one side of a component is allowed.
- Splitting or cracking of the components is not allowed.
- Twist should not exceed 4°.
- No knots or knotholes in the middle of the timber greater than 35% of the width of the timber are allowed.
- No knots or knotholes greater than 25% of the width are allowed on the edge of the timber.
- Knots and knotholes should not interfere with nail placement.
- Any defect that results in a sharp edge capable of damaging a carton is prohibited.

5.3 Pallet Design

There are several different pallet designs currently used by the Citrus industry, however, to date, most of these pallets have not been properly trialled or tested by the CRI. As such, only the existing CRI pallet will be included in this document at present, see Appendix A. If you require information relating to other pallet designs, please contact the CRI. Note that pallets used for export to the USA are specified in the Summer Citrus Pallet guide.

It is recommended that, due to the load carried by the pallet and the usage thereof, the following be adhered to when purchasing or designing any pallet for citrus export:

- 25 mm thick bearers should be used.
- The deck spacing should be compatible with the cartons being palletised.
- At least 3, 60 mm long nails should be nailed into each corner block of the pallet, both from the Top slat side and the Bottom slat side.
- Corner blocks should be at least 100 mm wide, 150 mm long and 90 mm high.
- Pallets should be symmetrical around the centre of the pallet.
- All pallets must be 4-way entry pallets, with a full perimeter base.

5.4 Phytosanitary requirements

It is a statutory requirement that wood used in the manufacturing of wooden pallets for export citrus must be treated to prevent infestation with pests/insects. No fungal growth is allowed on pallets.

Wooden packaging must be treated in accordance with ISPM 15, "[Guidelines for Regulating Wood Packaging Material in International Trade](#)." Treatment can either be with heat (including a kiln drier), Methyl Bromide or Sulphuryl Floride (SF). **Note that SF is not acceptable for pallets being sent to the USA.**

Comprehensive information on the treatment regulations is available at:

<http://www.olderd.gov.za/Branches/Agricultural-Production-Health-Food-Safety/Inspection-Services/Wood-Packaging>

It is important that all pallets be marked correctly. It is noted that several pallets were rejected last year due to incorrect or damaged markings. All pallets for export must have the following:

- The IPPC Symbol.
- ISO two-letter country code (ZA the country code) followed by a code assigned to the producer/treatment provider of the wood packaging material, who is responsible for ensuring appropriate wood is used and properly marked.
- IPPC abbreviation according to the approved treatment used - (e.g., HT, MB or SF).

The mark should have a clear border around it and the use of red or orange text should be avoided because these colours are used in the labelling of dangerous goods. An example of the correct ISPM pallet marking is shown in Figure 10.

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Figure 10: Full ISPM Pallet Mark.

In addition, the date of treatment must be shown on two opposite sides of all pallets. It must be placed strictly outside the borders of the IPPC mark in a visible location and must show the day, month and year on which the treatment took place (E.g., 07-01-2026, 07/01/2026 or 07 Jan 2026). Note that if the date of treatment is not 100% legible, pallets may be rejected. The ISPM 15- Guidelines for regulating wood-packaging material in international trade can be accessed on:

<http://www.fao.org/3/mb160e/mb160e.pdf>



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6 Palletisation Guidelines

The stacking and stabilisation of the cartons on the pallets are extremely important. The cartons on the first (bottom) layer must be positioned in such a way that the four corners of the cartons are always supported by a pallet slat: the four corners of each carton must always rest squarely on wood. It is recommended that the carton corner sit on at least half of the width of a Top slat, which provides half the width of the Top slat to support the adjacent carton. An example showing where the carton corners are not properly supported is shown in **Figure 11**.



Figure 11: Photograph showing cartons where the corners of the cartons are not supported by the Top slats. Note that there is a flaw in the pallet design/manufacture that has resulted in this issue.

Cartons should be placed tightly against one another, and no edge of a carton should overhang the pallet. In addition, cartons should be palletised square on the pallet and, if a CRI 1210 x 1010 mm pallet is used, there should be a uniform space between the cartons and pallet edge along the full perimeter of the pallet. On a 1200 x 1000 mm pallet, the cartons should sit flush with the pallet edges.

Note that if the cartons are overfilled or filled with excessive bulge, the cartons will not palletise properly and there will be a strong chance that the cartons will overhang the pallet edge, depending on which pallet has been used.

6.1 Strapping

It is suggested that polypropylene (PP) or polyethylene terephthalate (PET) strapping is used for palletising. The strapping should have a minimum breaking strength of 180 kg with a minimum width of 12 mm $\pm$ 0.5 mm. It is suggested that the strapping

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have a minimum thickness of 0.70 mm with a minimum mass of a 6.60 g/m. Note that, depending on the breaking strength, polyethylene (PE) strapping can also be used. It is important to trial strapping in your packhouse, in conjunction with the strapping method used in your logistics chain, before changing your strapping type or purchasing a new strapping material. Further information will be provided on strapping in the future.

6.2 Corner Pieces

It is suggested that corner pieces with a 50 x 50 mm cross-section and a thickness of 5 mm be used (**Figure 12**). It is suggested, for maximum moisture resistance, that the corner pieces be constructed from virgin paper and semi-chemical fluting. The water absorption of the outer face of the laminated paper corner pieces should be a maximum of 80 g/m² per 5 minutes.

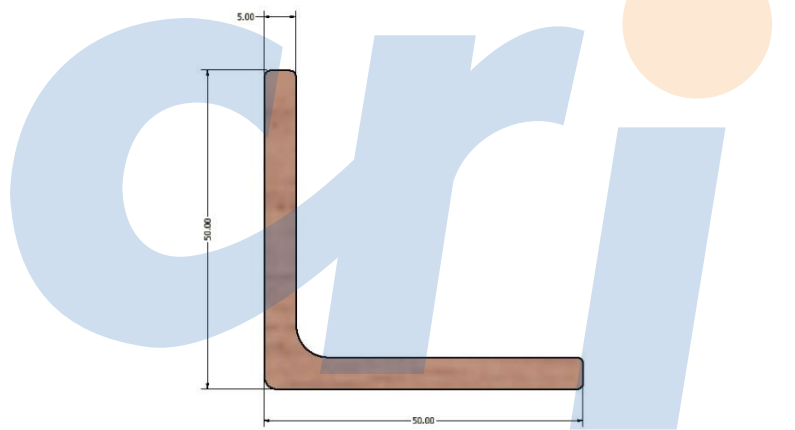


Figure 12: Suggested corner piece cross-section for citrus pallets.

Traditionally, it has been recommended that the corner pieces should not overlap the corners of the pallet (**Figure 13**). However, in recent years, there have been customers requiring corner pieces to be a third over the corner of the pallet and (**Figure 14**), in some cases, as recommended by some of the corner piece manufacturers, all the way to the base of the pallet.

If the corner pieces are run over the pallet base, they must be secured by a strap around the perimeter of the pallet base, as shown in **Figure 14**. **Please note that if the standard 1210 x 1010 mm CRI pallet is used, the corner pieces cannot be placed over the pallet corners (Figure 13). In addition, they should be above the pallet base if a purple block pallets is used.**

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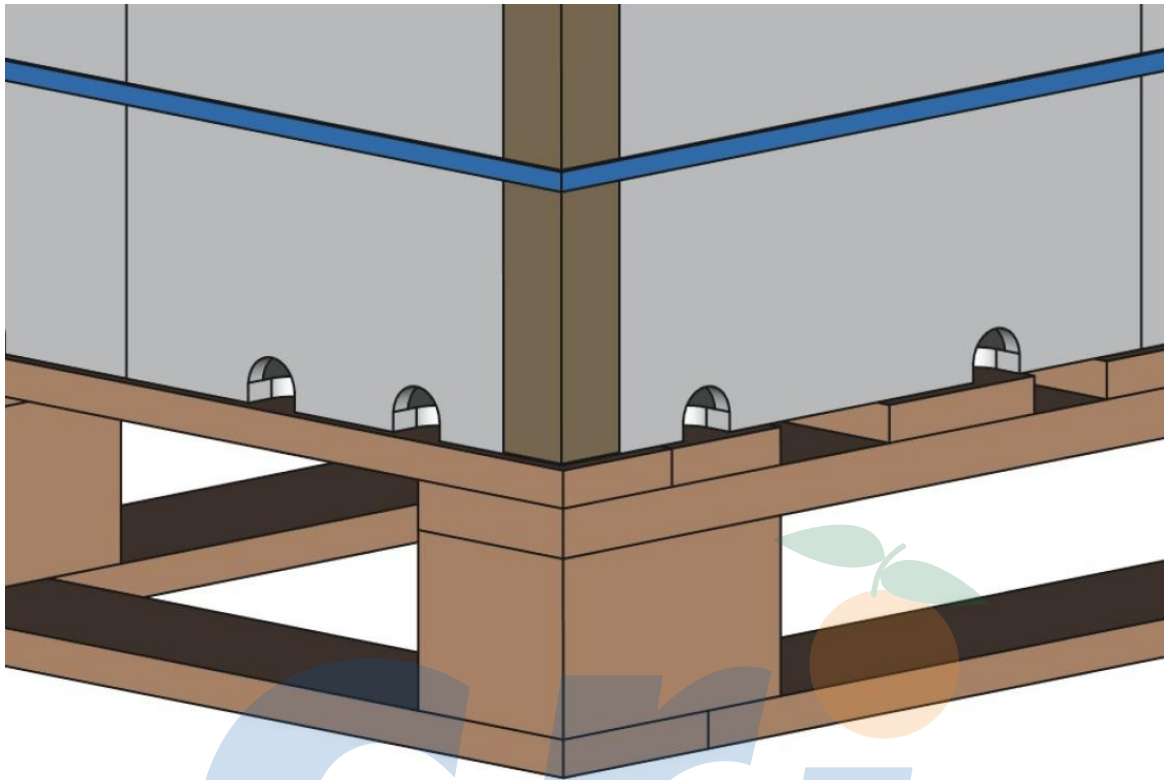


Figure 13: Image of CRI 1210 x 1010 mm pallet corner showing the corner piece sitting on top of the pallet base.

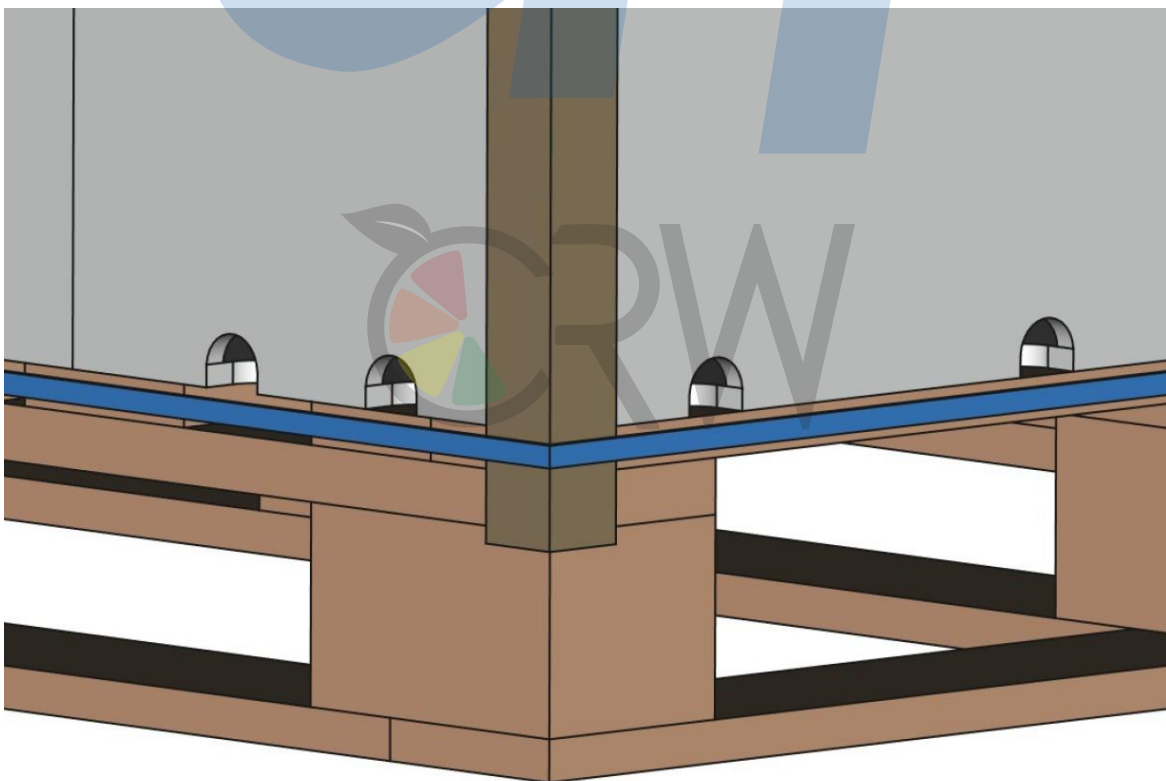


Figure 14: Image of a 1200 x 1000 mm pallet corner highlighting the corner piece running over the pallet corner and the placement of strapping around the circumference of the pallet to secure the corner piece.

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Corner pieces must be the correct length for the containers and cartons used to ensure the corner piece covers the entire outside corner of the palletised load. Note that if the cartons are overfilled and the lids of the telescopic cartons stand proud at the top of the pallet, it is recommended that the corner pieces be long enough to accommodate this. Corner pieces should be marked with the new PAP 21 logo, which refers to the recycling identification code for non-corrugated paperboard.

6.3 Spot-glueing

In cases where spot-glueing can be done successfully and the use of corner pieces for certain markets is not compulsory, cartons may be stabilised/secured with spot glue. The suggested placement of the spot-glueing is shown in Figure 15.

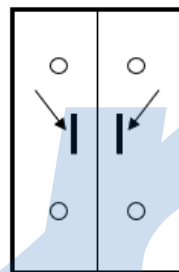


Figure 15: Placement of spot-glueing on a telescopic carton.

6.4 Palletising of Telescopic cartons

For telescopic cartons, it is considered good practice to column stack the first few layers of the palletised load, see Appendix B. For the A15-S2 telescopic cartons, it is currently considered best practice that at least the first three layers of the palletised load be column stacked (**Figure 16**), and thereafter the cartons should be brick stacked (**Figure 17**). The palletised load shown in **Figure 17** is the palletising configuration for a Hi-Cube container. Note the placement of the straps on layers 1,2,3,5,7 & 8. As the CRI pallet has been used for this diagram, the corner pieces are sitting on top of the pallet base as described in 6.2. **Note that these guidelines represent the minimum number of layers to be strapped, and it would be considered good practice to strap each layer.**

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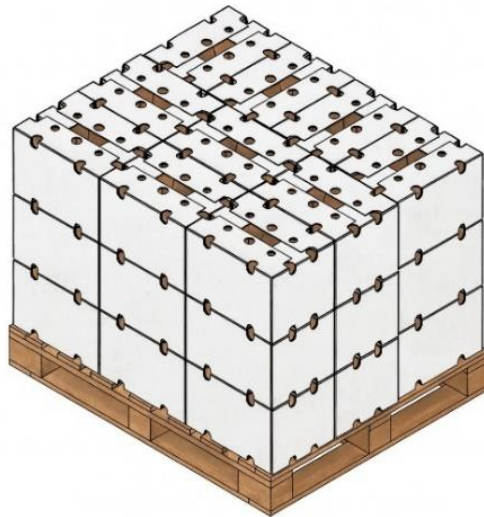


Figure 16: A15C S2 cartons on a CRI pallet highlighting the recommended stacking pattern for the first three layers.

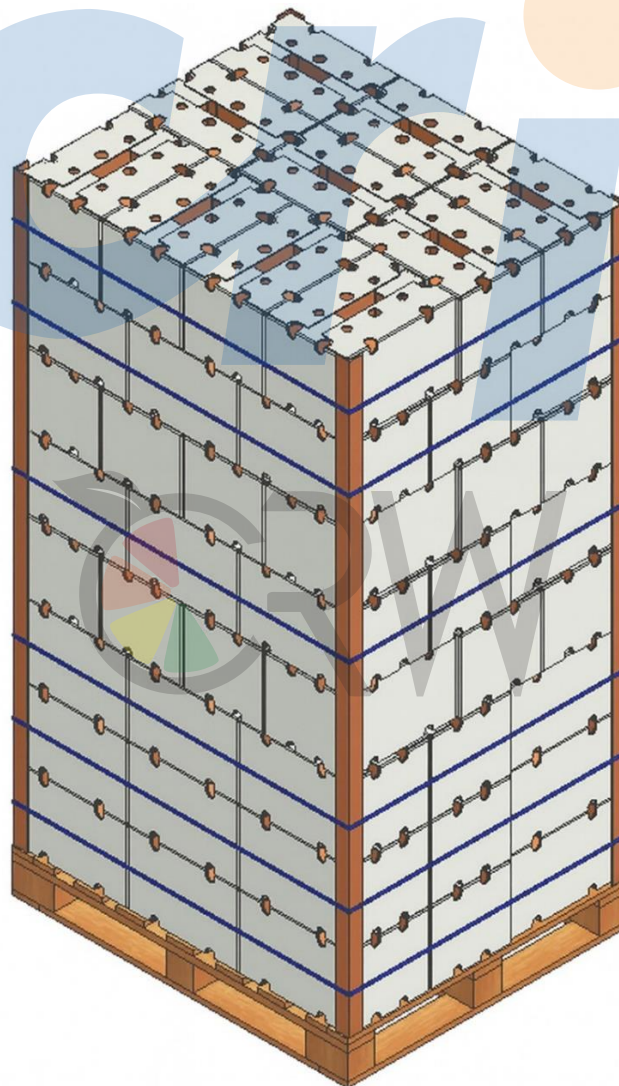


Figure 17: Palletised A15C S2 cartons for a Hi-Cube shipping container, highlighting the placement of the corner pieces and strapping (blue lines).

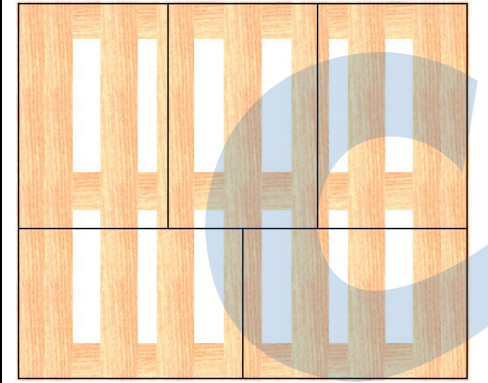
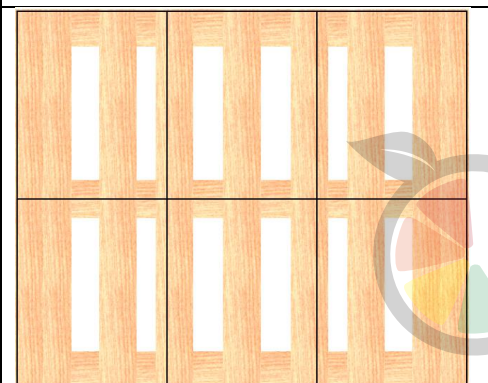
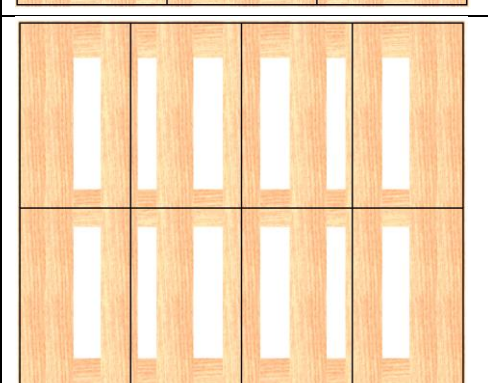
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If a standard shipping container or a conventional vessel is being used, the 8th layer of cartons would be removed from the pallet shown in **Figure 17**, and the strapping would be placed on layers 1,2,3,5 & 7. For the palletising of additional telescopic carton designs, please see Appendix B or contact the CRI.

6.5 Palletising of Open Display Cartons

Three different footprints for open display cartons are included in this document: 500 x 300 mm, 500 x 400 mm, and 600 x 400 mm. The packing configuration for these carton footprints is shown in Table 6 and a 3D example of a 600 x 400 mm footprint carton (E15D) in **Figure 18**.

Table 6: Open display carton packing configurations.

	600 X 400 mm carton packing configuration on a CRI 1.21 x 1.01 m pallet
	500 X 400 mm carton packing configuration on a CRI 1.21 x 1.01 m pallet
	500 X 300 mm carton packing configuration on a CRI 1.21 x 1.01 m pallet

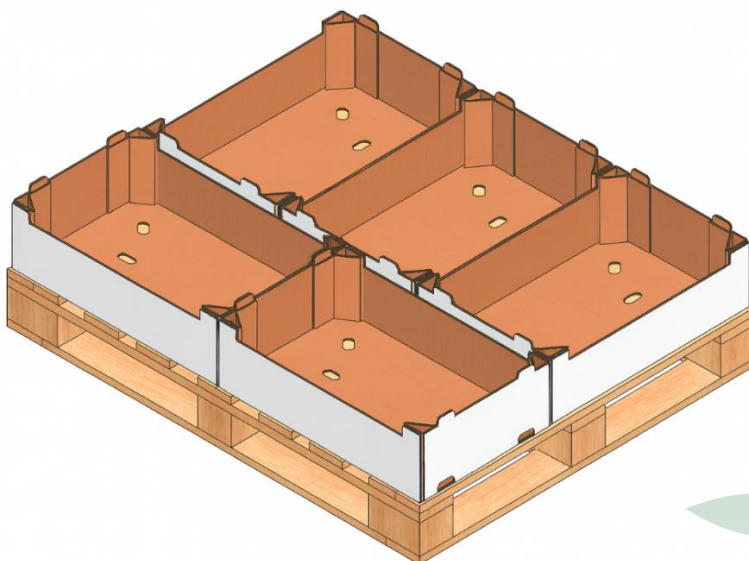


Figure 18: Image showing the packing configuration of E15D cartons on a CRI 1210 x 1010 mm pallet.

The suggested strapping and securing sheet configurations for a Hi-cube shipping container are shown in Table 7. A full 3D drawing of a pallet of E15D cartons is shown in **Figure 19** to highlight the information shown in Table 7. **Note that these guidelines represent the minimum number of layers to be strapped, and it is considered good practice to strap each layer.**

If you require information for standard containers or conventional shipping methods, please contact the CRI. In addition, please see Appendix B or contact the CRI for palletising diagrams of additional open top carton designs.

Table 7: The suggested strapping and securing sheet configuration for the listed open display cartons for a Hi-Cube shipping container

<i>Carton Code</i>	<i>Cartons per layer</i>	<i>Total number of layers</i>	<i>Total cartons per pallet</i>	<i>Strapped Layer</i>	<i>Securing sheet layers</i>
<i>D10D</i>	8	14	112	1, 2, 3, 5, 7, 9, 11 & 14	1, 2, 3, 5, 8 & 11
<i>D15D</i>	5	14	70	1, 2, 3, 5, 7, 9, 11 & 14	1, 2, 3, 5, 8 & 11
<i>E10D</i>	8	13	104	1, 2, 3, 5, 7, 9, 11 & 13	1, 2, 3, 5, 8 & 11
<i>E15D / E16D</i>	5	13	65	1,2,3,5,7,9,11 & 13	1, 2, 3, 5, 8 & 11
<i>F15D</i>	6	11	66	1, 2, 3, 5, 8 & 11	1, 2, 3, 5 & 8

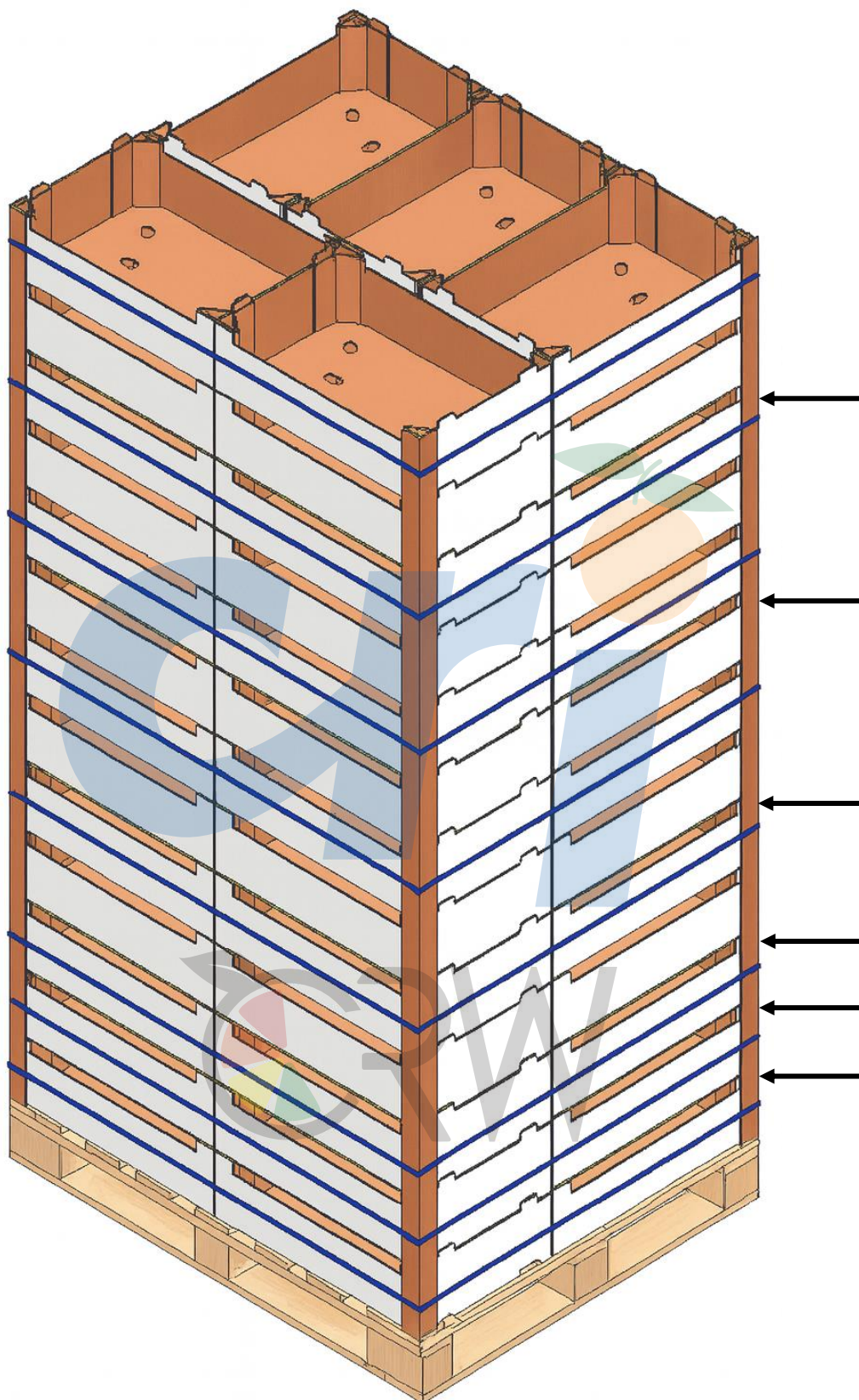


Figure 19: Diagram showing a pallet of E15D cartons palletised for use in a Hi-Cube shipping container, highlighting the placement of strapping and securing sheets as described in Table 7. Note the pallet cap has not been included in this diagram. The black arrows indicate the layers where securing sheets are placed. Blue lines indicate strapping.

7 Appendix A

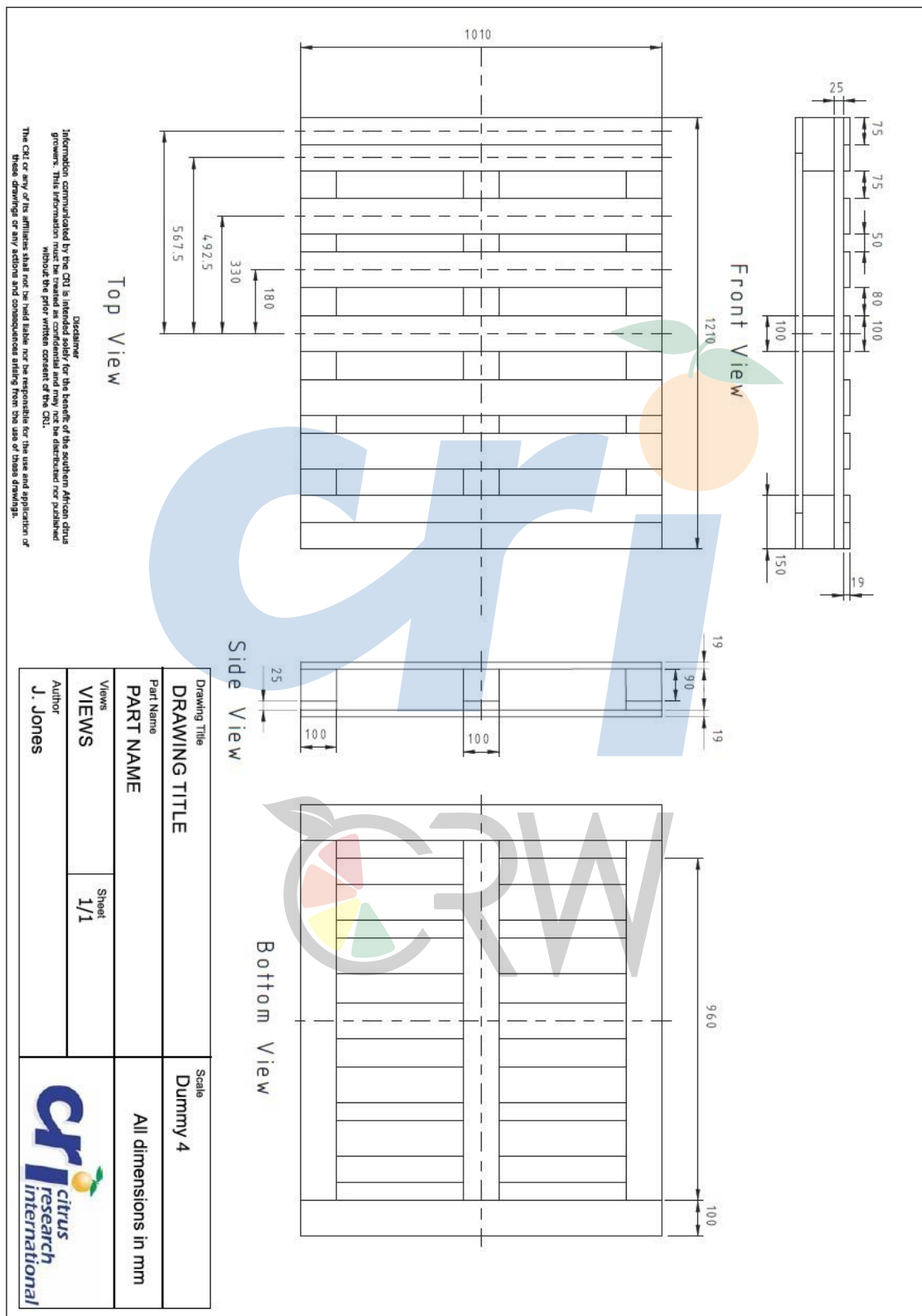
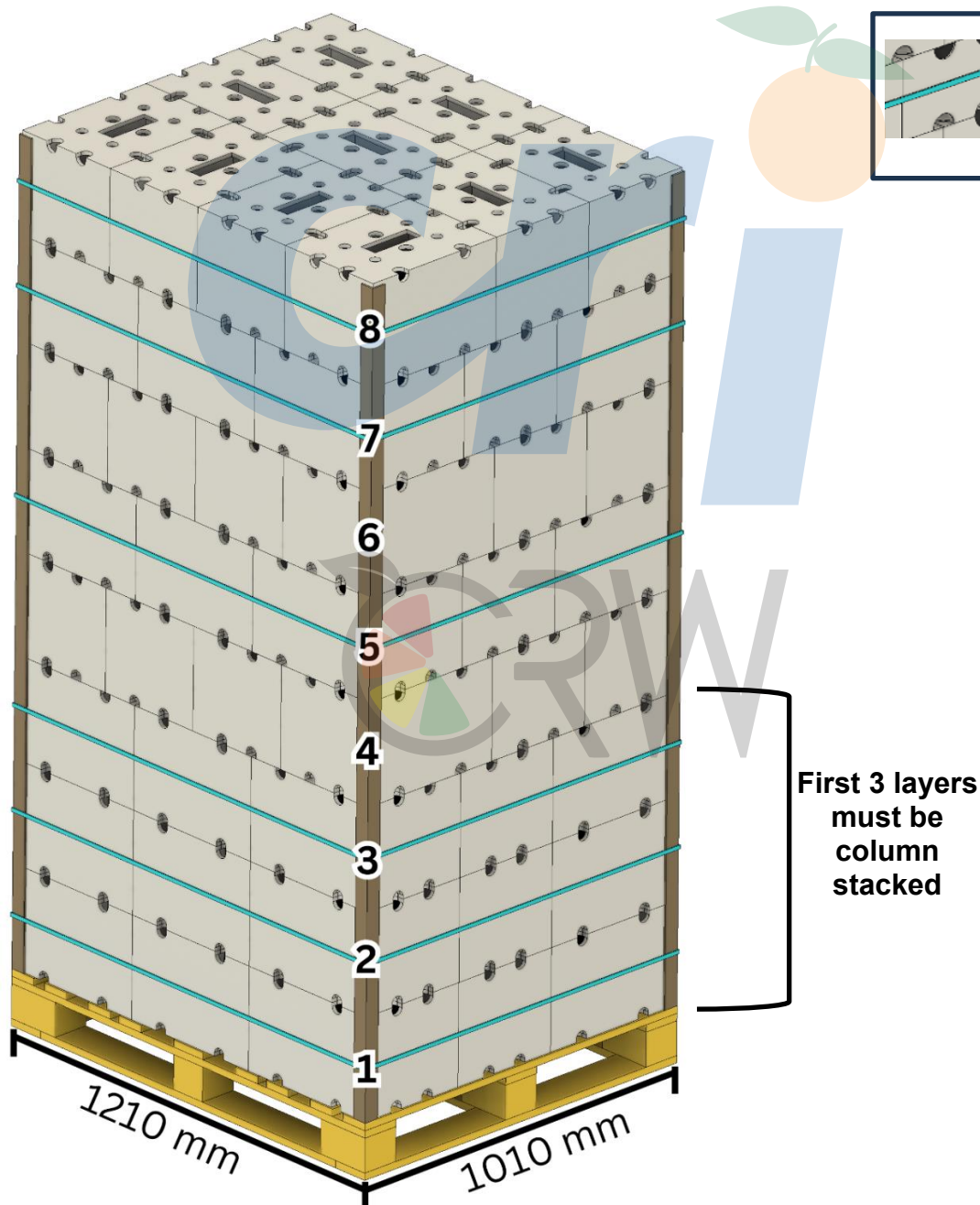


Figure 20: CRI 1210 x 1010 mm Pallet Dimensions.

8 Appendix B

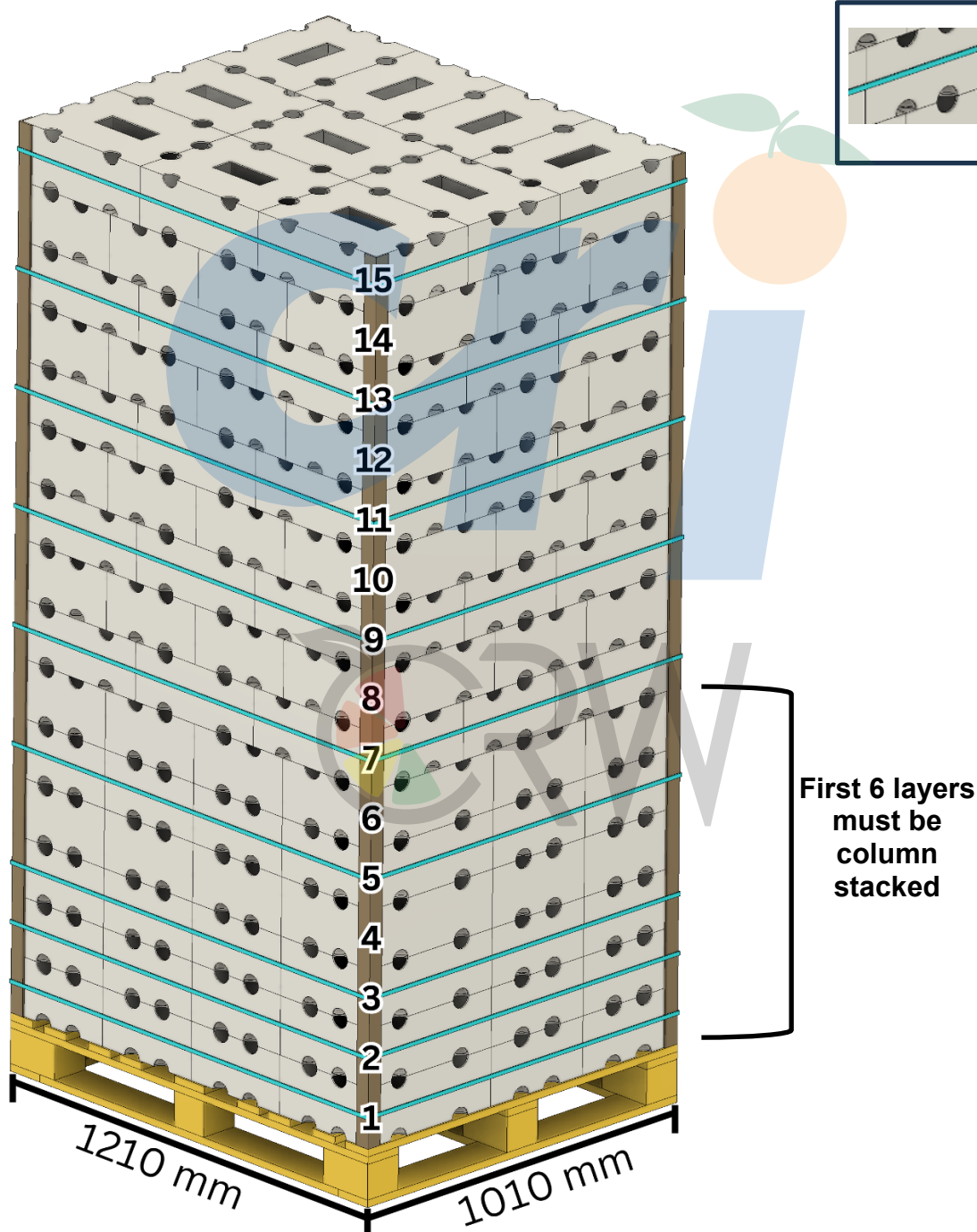
8.1 A15C-S2 Citrus Carton

Carton Description:	A15C-S2
Dimensions:	400 x 300 x 270 mm
Cartons per Layer:	10
Number of Layers:	8
Cartons per Pallet:	80
Container:	Hi-Cube
Securing Sheets:	N/A
Strapping:	Layers 1, 2, 3, 5, 7, 8



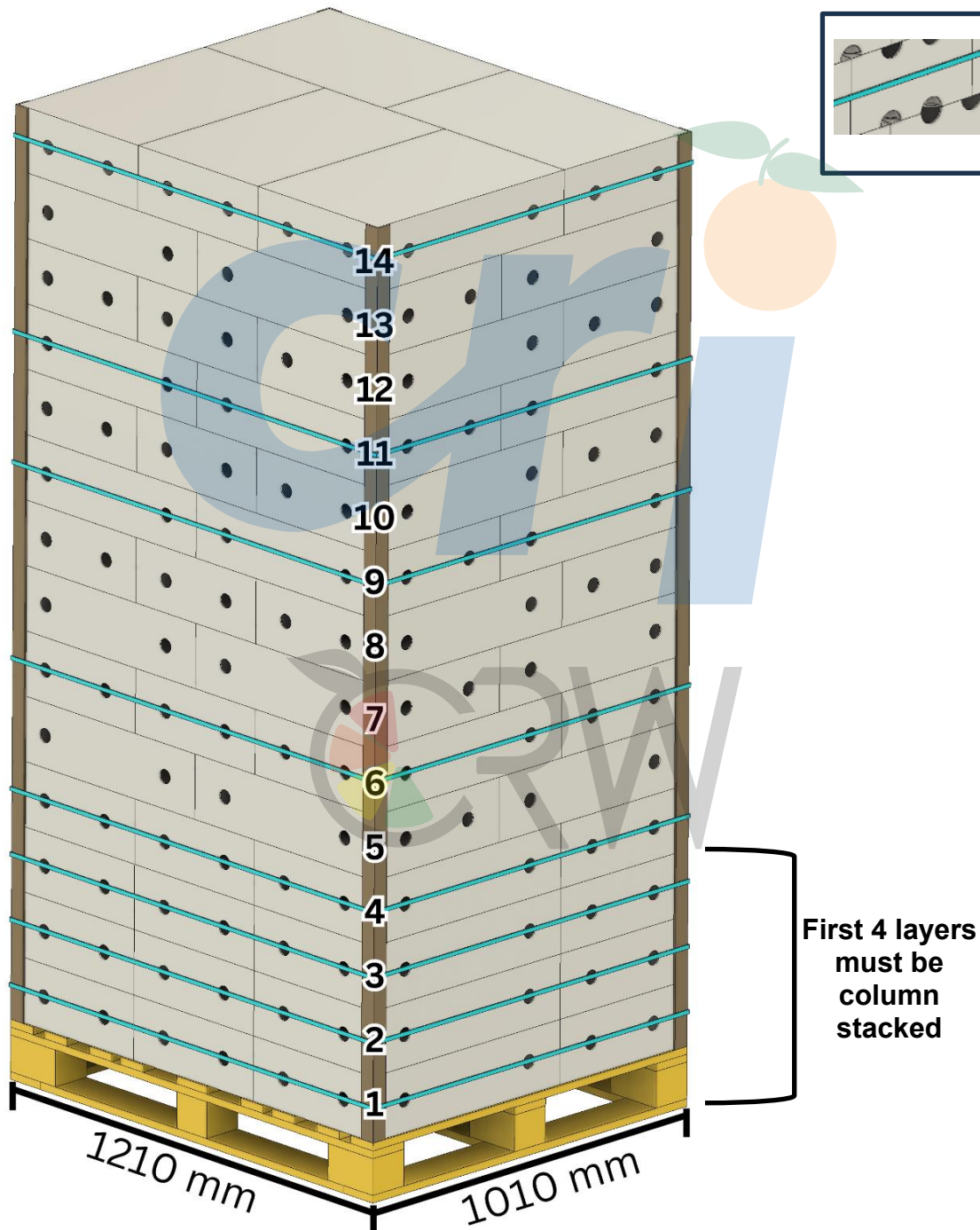
8.2 A07C Citrus Carton

Carton Description:	A07C
Dimensions:	400 x 300 x 150 mm
Cartons per Layer:	10
Number of Layers:	15
Cartons per Pallet:	150
Container:	Hi-Cube
Securing Sheets:	N/A
Strapping:	Layers 1, 2, 3, 5, 7, 9, 11, 13, 15



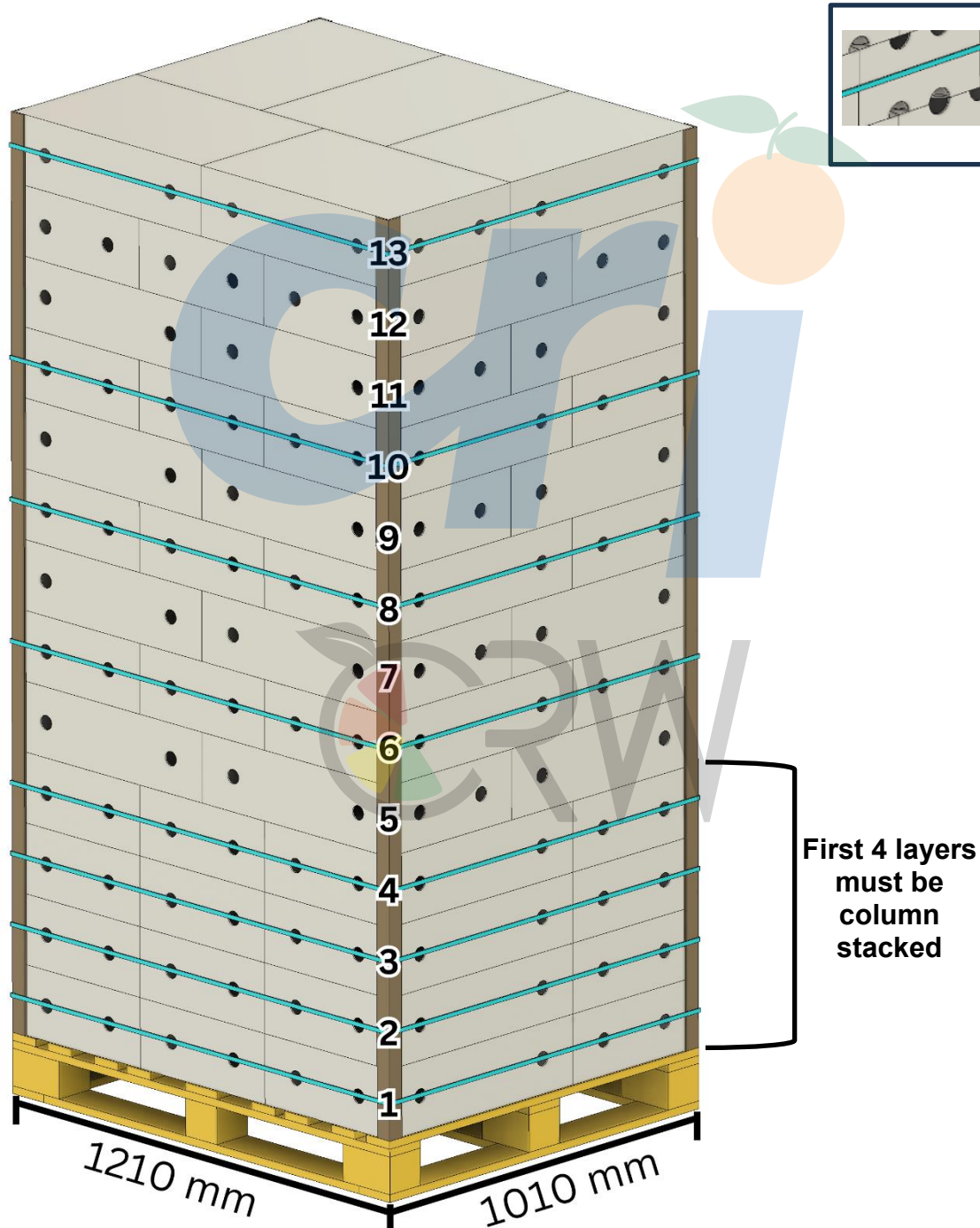
8.3 D15C Citrus Carton

Carton Description:	D15C
Dimensions:	600 x 400 x 160 mm
Cartons per Layer:	5
Number of Layers:	14
Cartons per Pallet:	70
Container:	Hi-Cube
Securing Sheets:	N/A
Strapping:	Layers 1, 2, 3, 4, 6, 9, 11, 14



8.4 E15C Citrus Carton

Carton Description:	E15C
Dimensions:	600 x 400 x 170 mm
Cartons per Layer:	5
Number of Layers:	13
Cartons per Pallet:	65
Container:	Hi-Cube
Securing Sheets:	N/A
Strapping:	Layers 1, 2, 3, 4, 6, 8, 10, 13

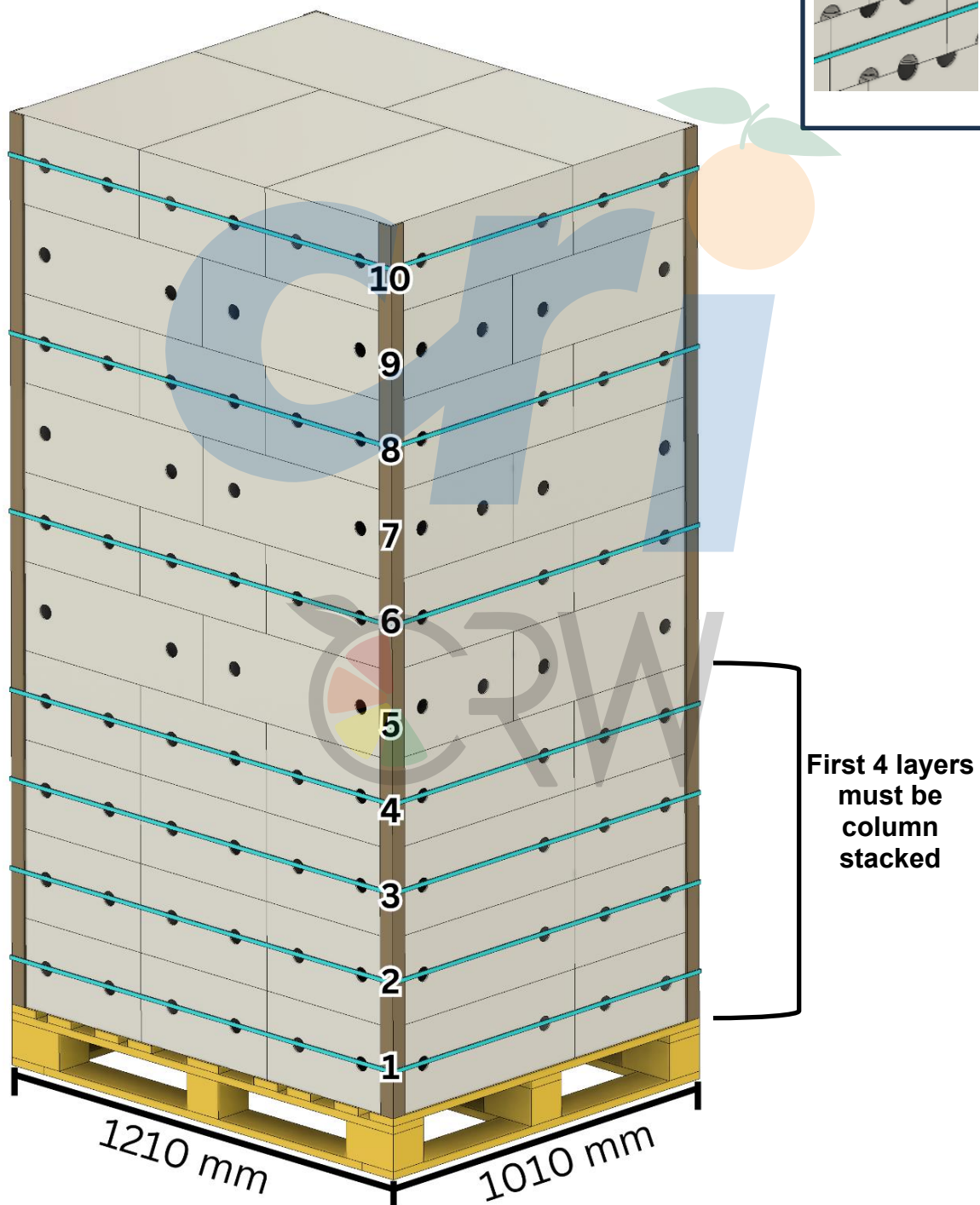


Indicates
"Strapping"

First 4 layers
must be
column
stacked

8.5 G15C Citrus Carton

Carton Description:	G15C
Dimensions:	600 x 400 x 215 mm
Cartons per Layer:	5
Number of Layers:	10
Cartons per Pallet:	50
Container:	Hi-Cube
Securing Sheets:	N/A
Strapping:	Layers 1, 2, 3, 4, 6, 8, 10



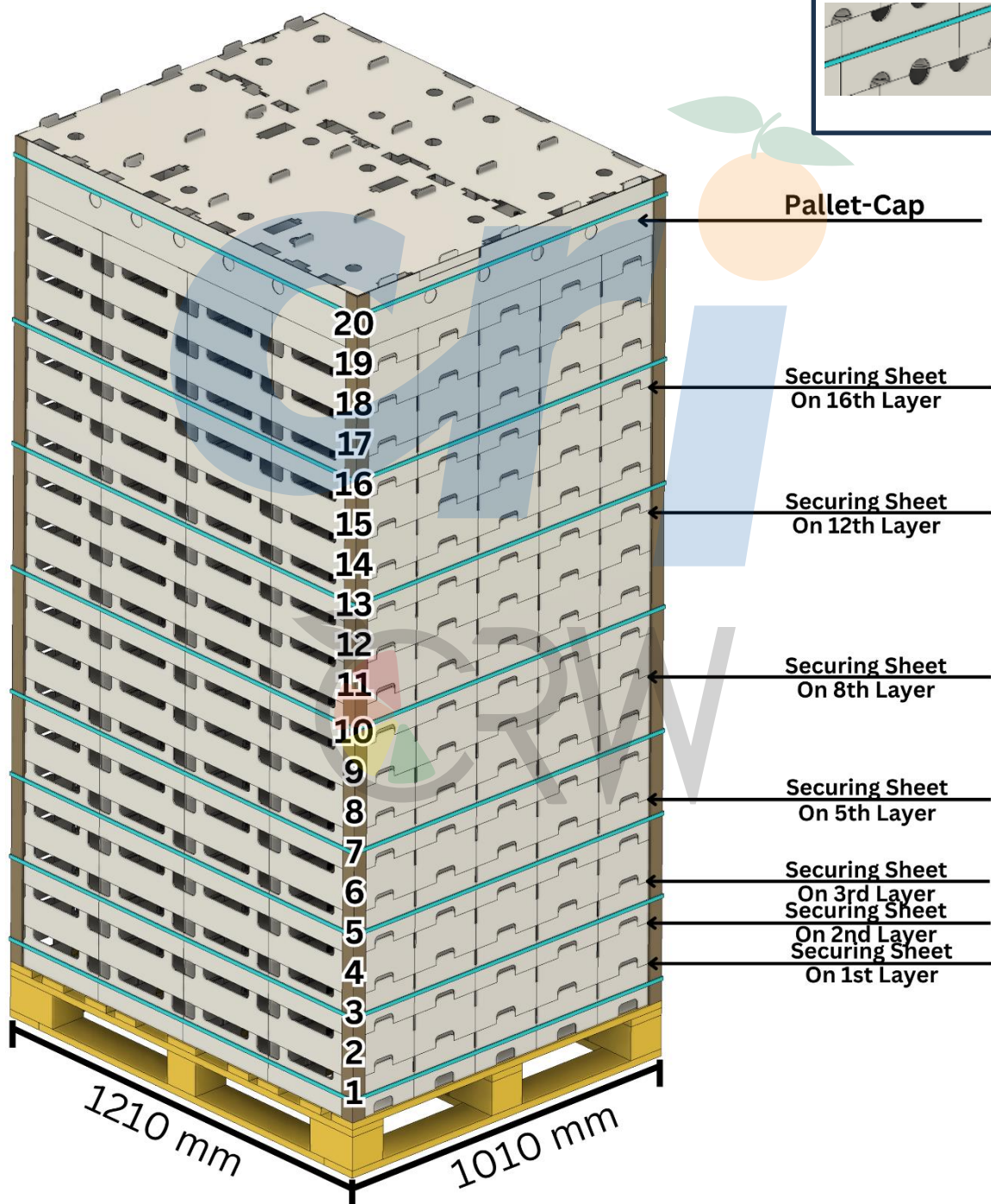
Indicates
"Strapping"

First 4 layers
must be
column
stacked

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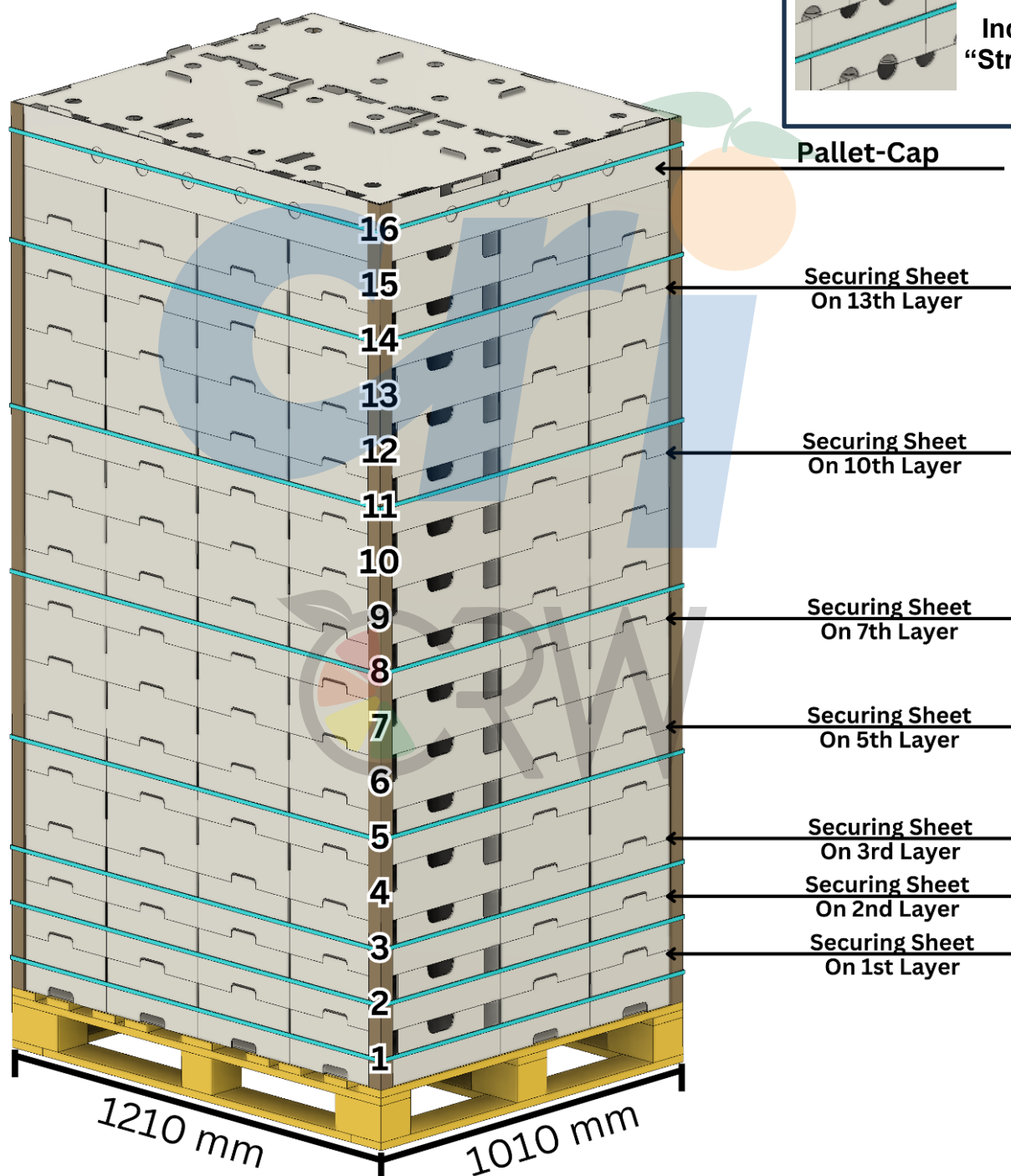
8.6 A02D Citrus Carton

Carton Description:	A02D
Dimensions:	300 x 200 x 110 mm
Cartons per Layer:	20
Number of Layers:	20
Cartons per Pallet:	400
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 12, 16
Strapping:	Layers 1, 3, 5, 7, 10, 13, 16, 20



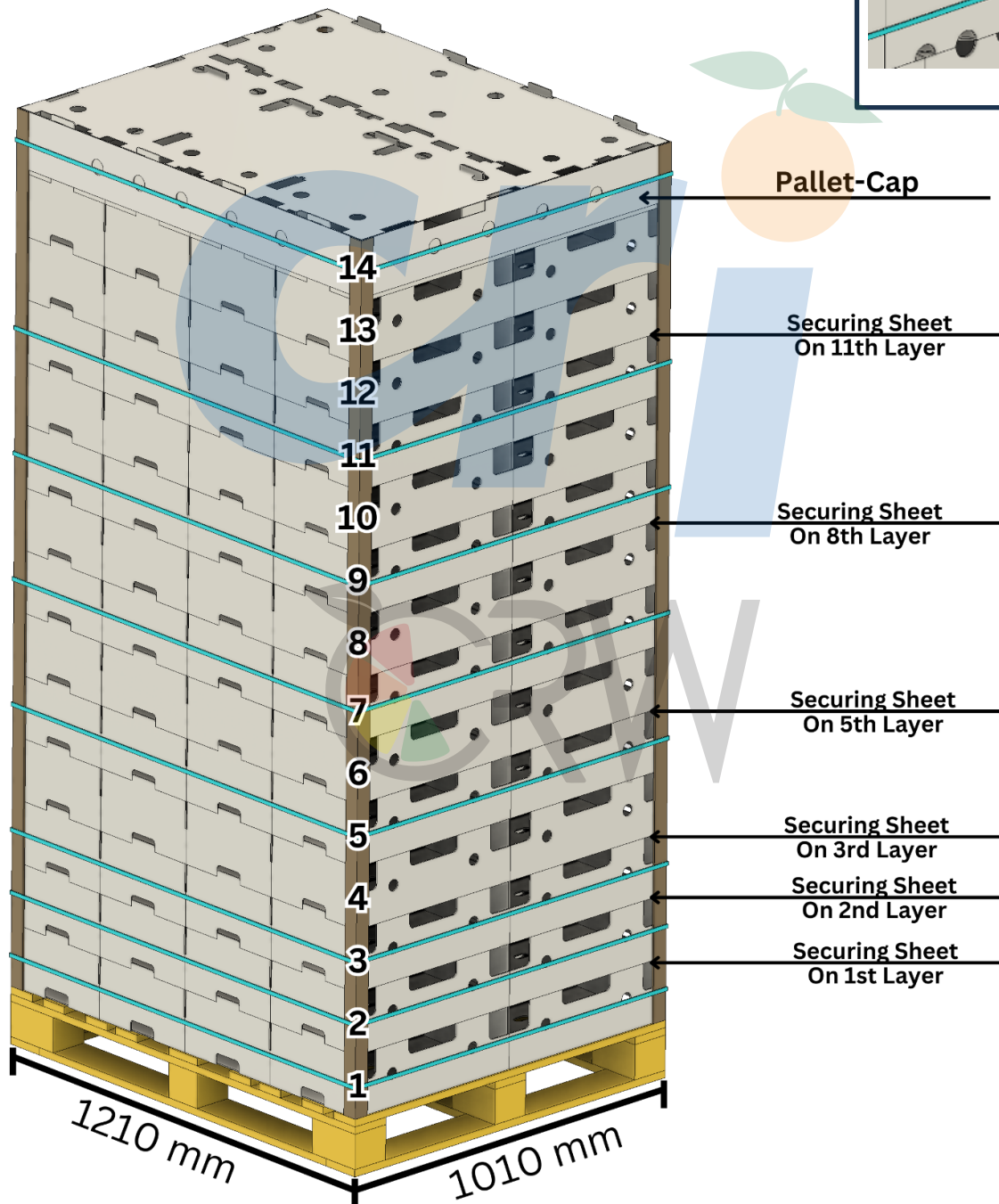
8.7 E06D Citrus Carton

Carton Description:	E06D
Dimensions:	400 x 300 x 135 mm
Cartons per Layer:	10
Number of Layers:	16
Cartons per Pallet:	160
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 7, 10, 13
Strapping:	Layers 1, 2, 3, 5, 8, 11, 14, 16



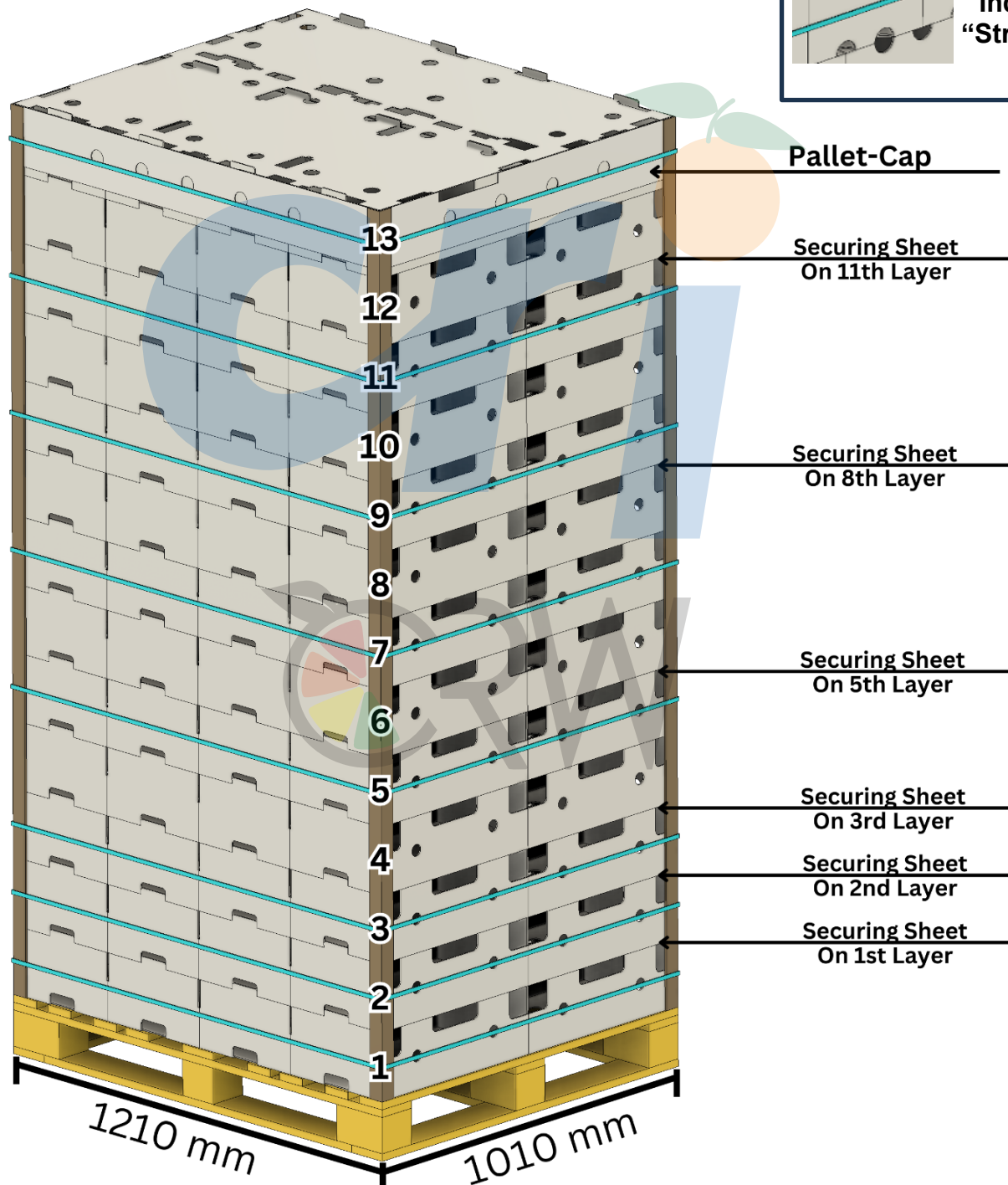
8.8 D10D Citrus Carton

Carton Description:	D10D
Dimensions:	500 x 300 x 160 mm
Cartons per Layer:	8
Number of Layers:	14
Cartons per Pallet:	112
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 11
Strapping:	Layers 1, 2, 3, 5, 7, 9, 11, 14



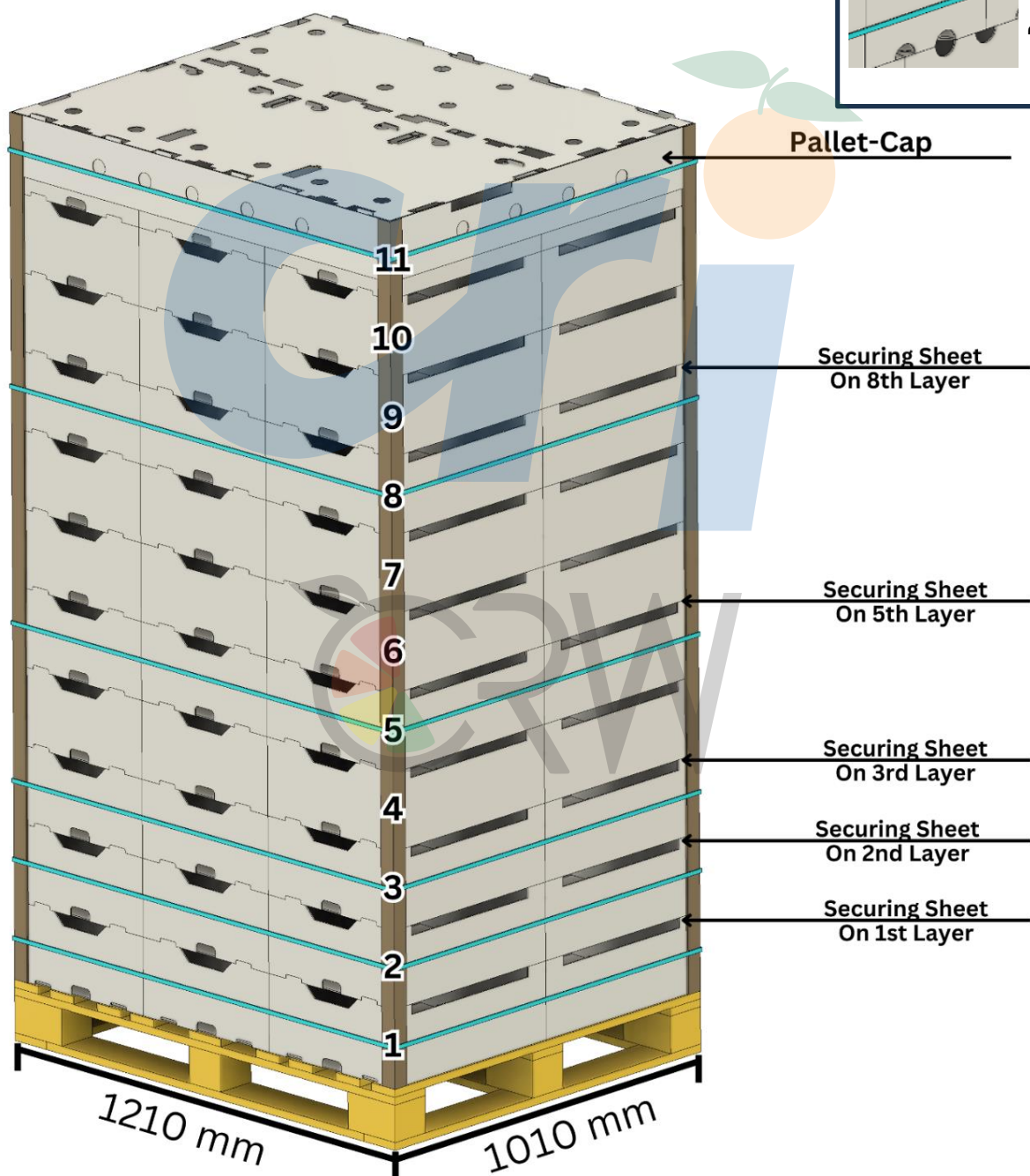
8.9 E10D Citrus Carton

Carton Description:	E10D
Dimensions:	500 x 300 x 170 mm
Cartons per Layer:	8
Number of Layers:	13
Cartons per Pallet:	104
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 11
Strapping:	Layers 1, 2, 3, 5, 7, 9, 11, 13



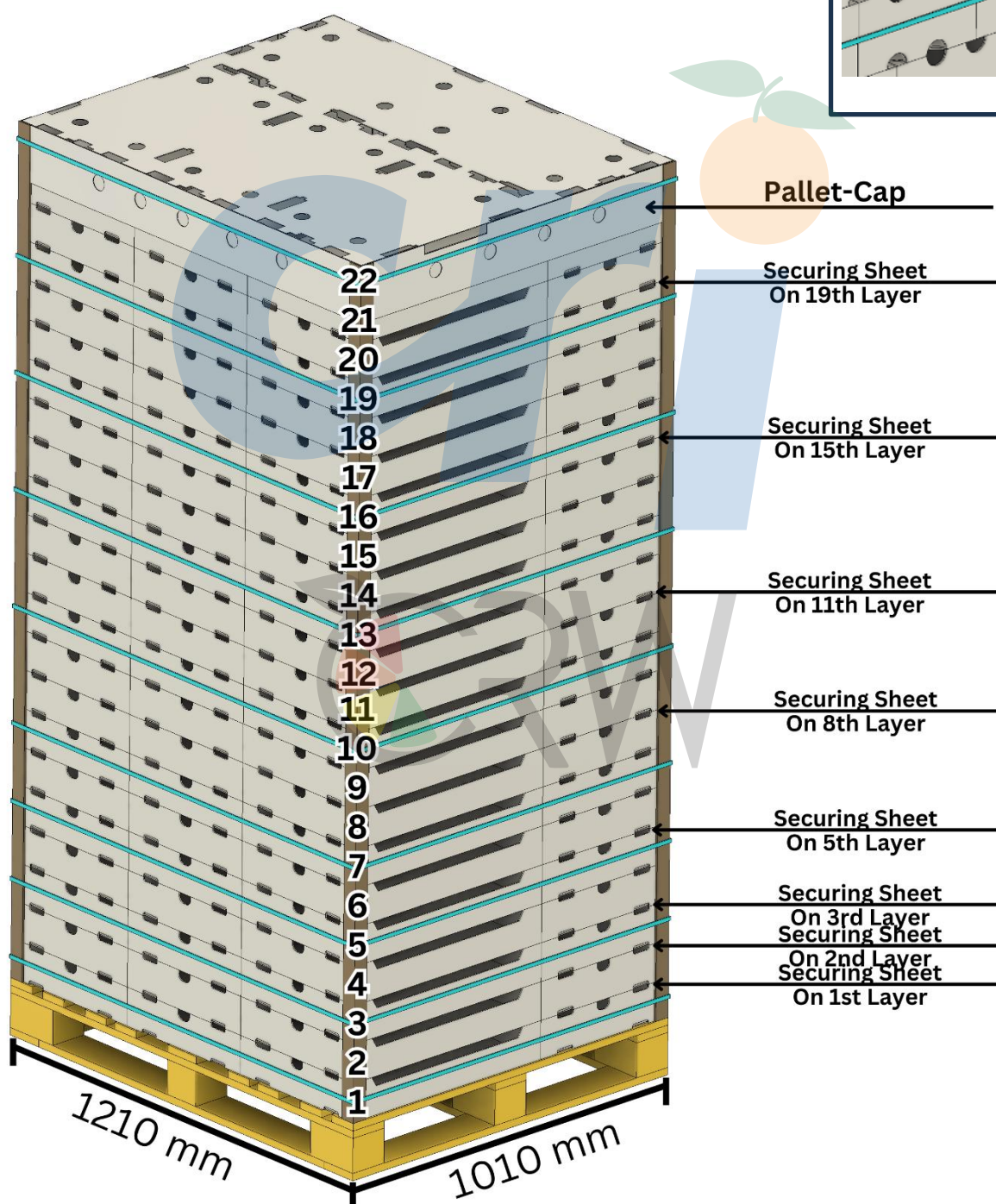
8.10 F15D Citrus Carton

Carton Description:	F15D
Dimensions:	500 x 400 x 190 mm
Cartons per Layer:	6
Number of Layers:	11
Cartons per Pallet:	66
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8
Strapping:	Layers 1, 2, 3, 5, 8, 11



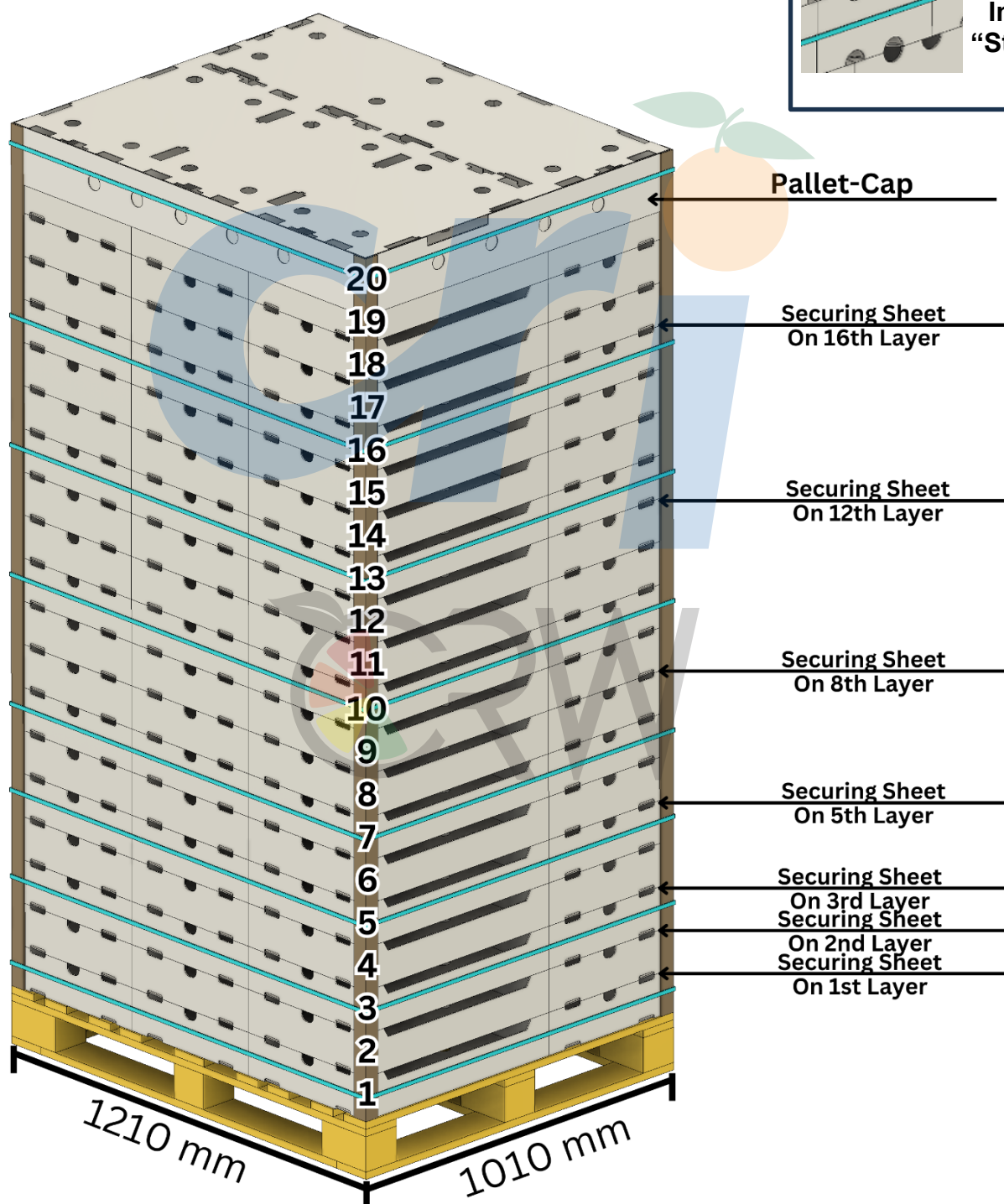
8.11 A06D Citrus Carton

Carton Description:	A06D
Dimensions:	600 x 400 x 100 mm
Cartons per Layer:	5
Number of Layers:	22
Cartons per Pallet:	110
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 11, 15, 19
Strapping:	Layers 1, 3, 5, 7, 10, 13, 16, 19, 22



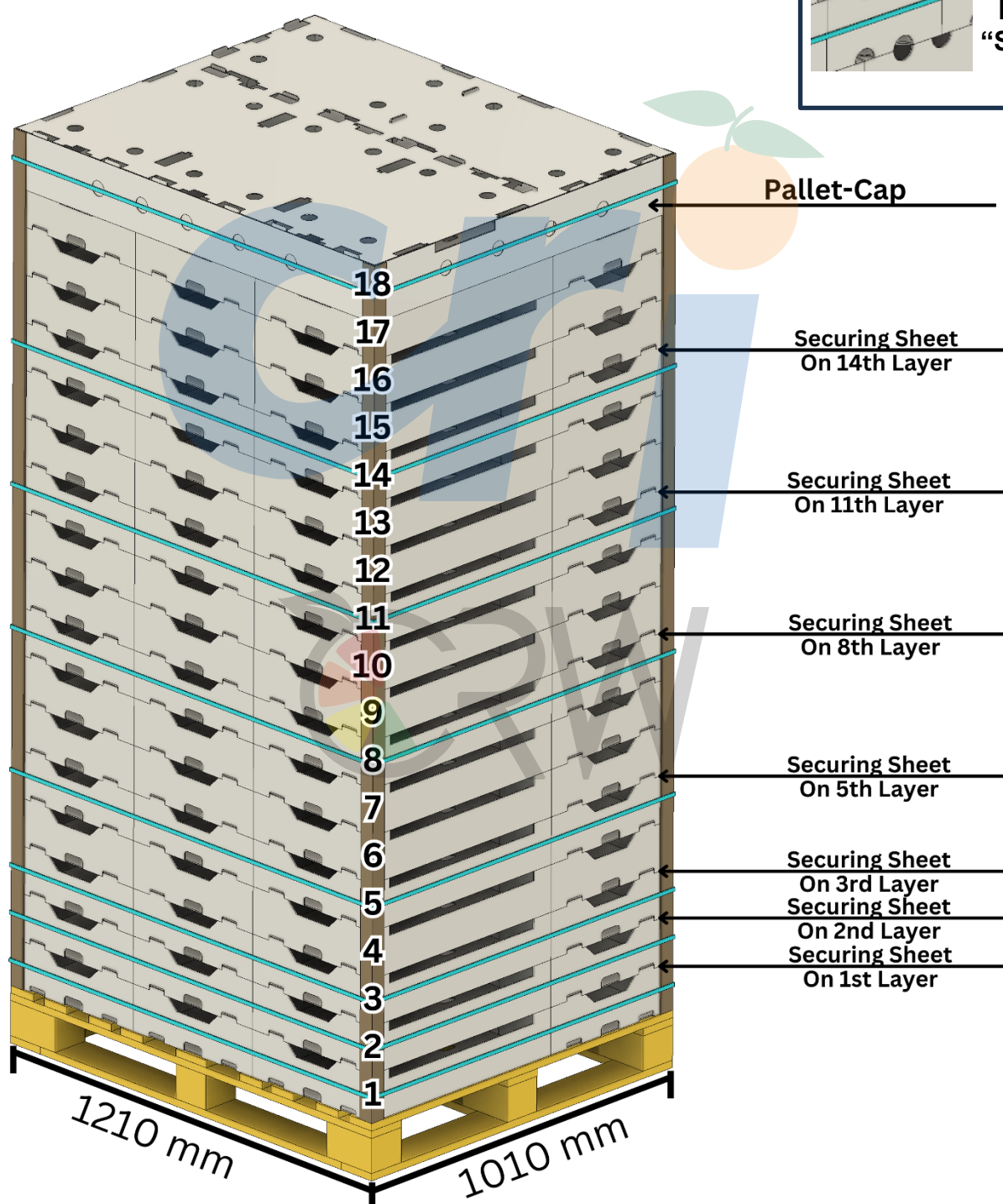
8.12 D640 Citrus Carton

Carton Description:	D640
Dimensions:	600 x 400 x 110 mm
Cartons per Layer:	5
Number of Layers:	20
Cartons per Pallet:	100
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 12, 16
Strapping:	Layers 1, 3, 5, 7, 10, 13, 16, 20



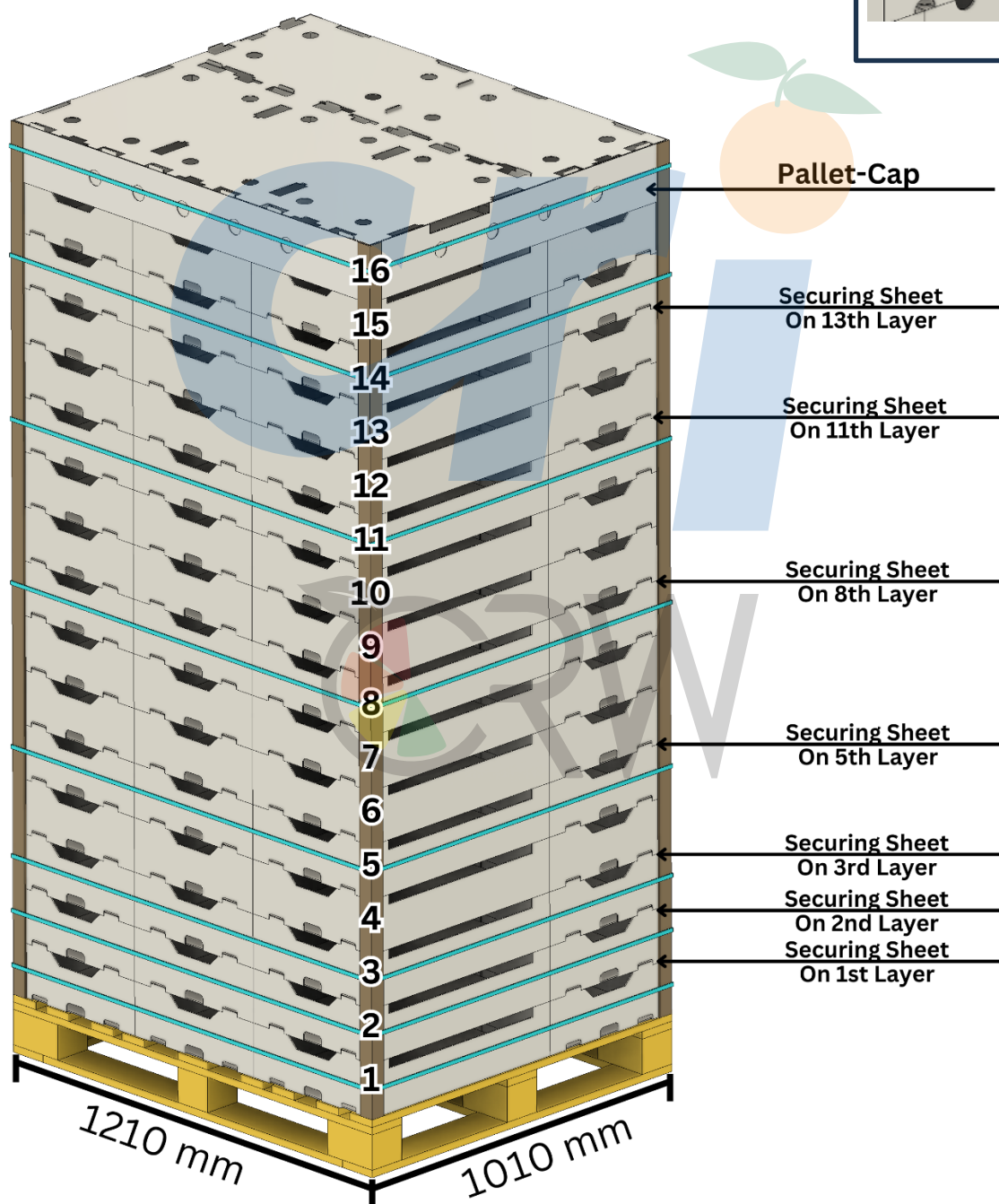
8.13 A10D Citrus Carton

Carton Description:	A10D
Dimensions:	600 x 400 x 122 mm
Cartons per Layer:	5
Number of Layers:	18
Cartons per Pallet:	90
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 11, 14
Strapping:	Layers 1, 2, 3, 5, 8, 11, 14, 18



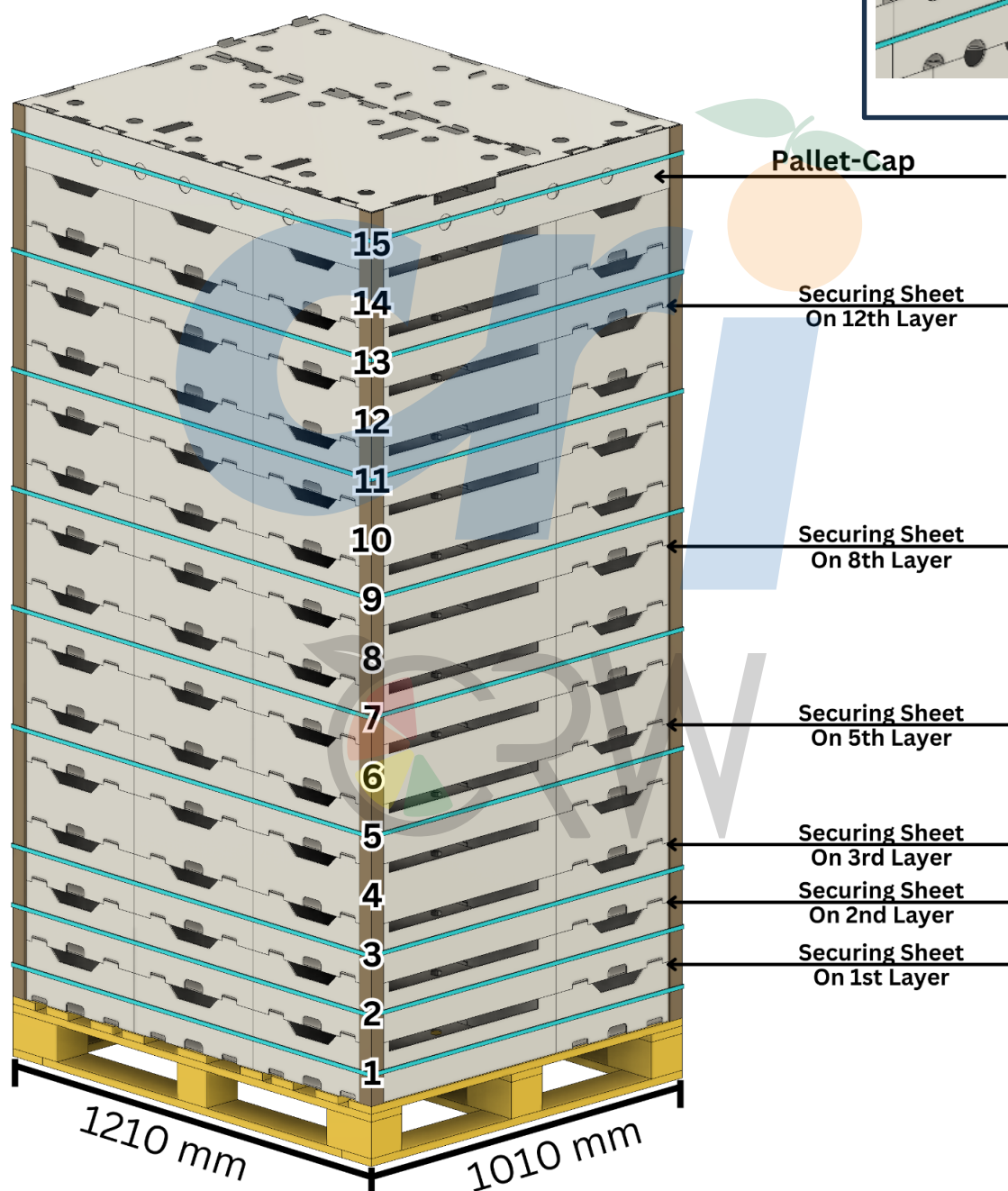
8.14 B10D Citrus Carton

Carton Description:	B10D
Dimensions:	600 x 400 x 139 mm
Cartons per Layer:	5
Number of Layers:	16
Cartons per Pallet:	80
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 11, 13
Strapping:	Layers 1, 2, 3, 5, 8, 11, 14, 16



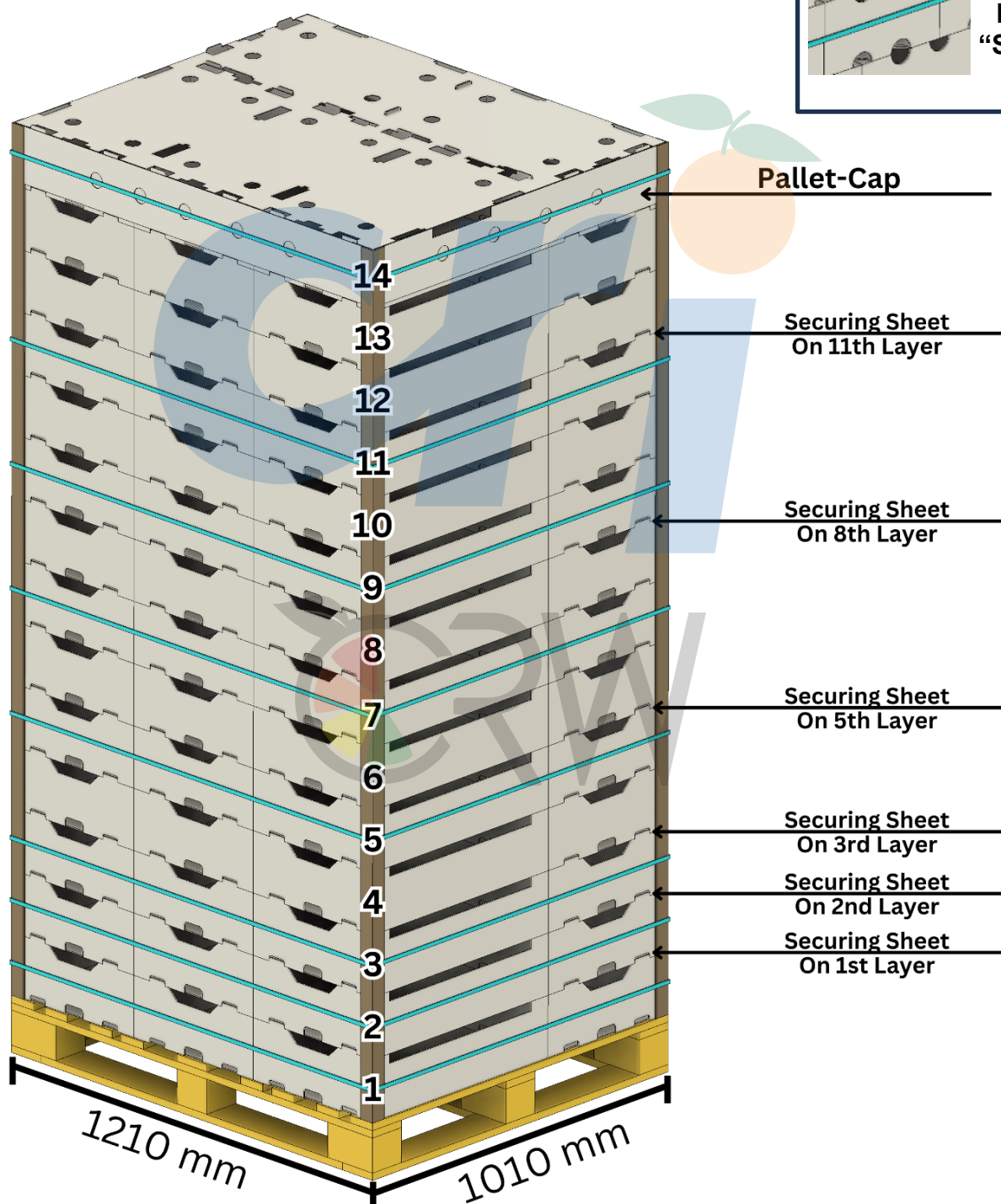
8.15 C15D Citrus Carton

Carton Description:	C15D
Dimensions:	600 x 400 x 146 mm
Cartons per Layer:	5
Number of Layers:	15
Cartons per Pallet:	75
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 12
Strapping:	Layers 1, 2, 3, 5, 7, 9, 11, 13, 15



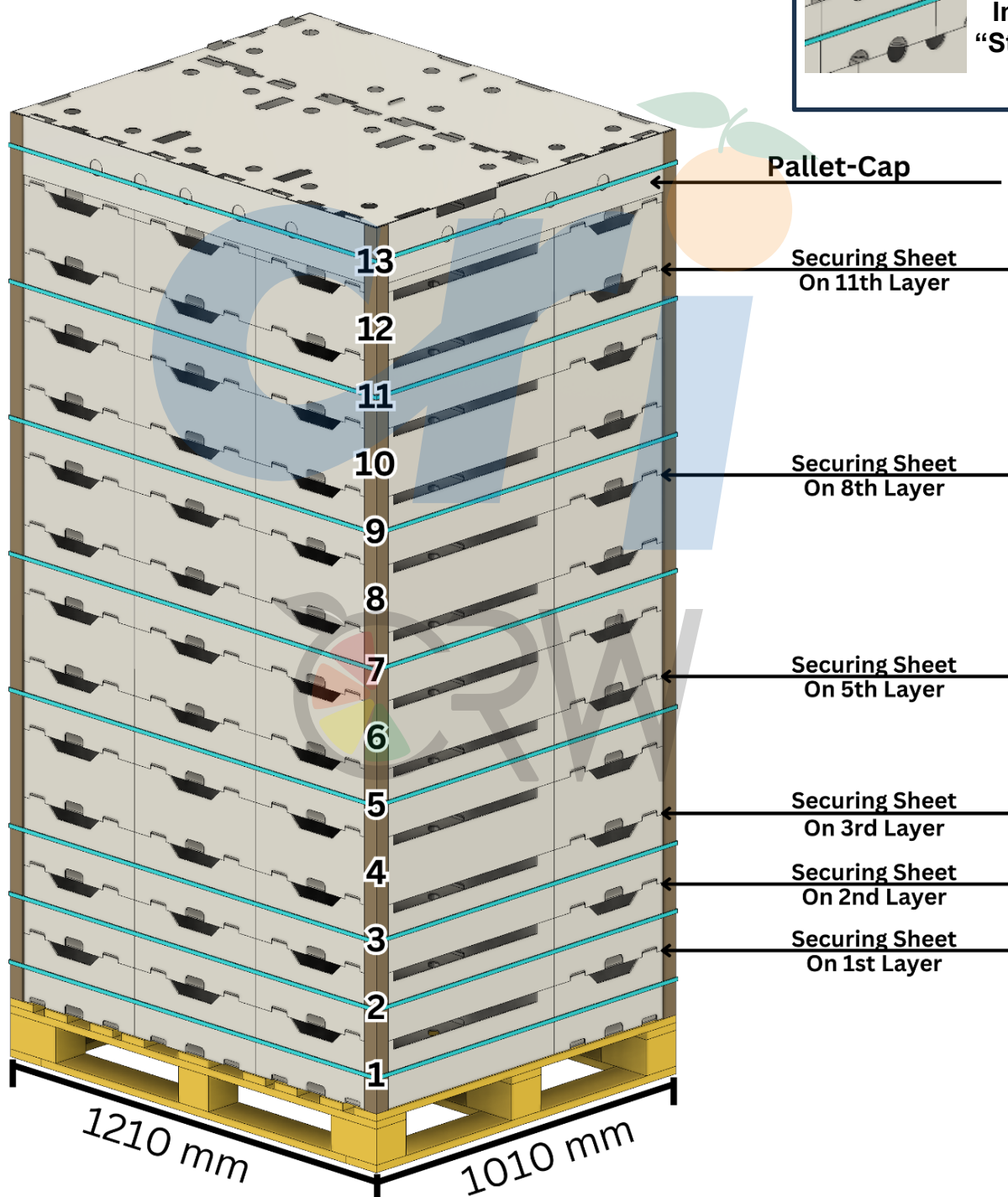
8.16 D15D Citrus Carton

Carton Description:	D15D
Dimensions:	600 x 400 x 160 mm
Cartons per Layer:	5
Number of Layers:	14
Cartons per Pallet:	70
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 11
Strapping:	Layers 1, 2, 3, 5, 7, 9, 11, 14



8.17 E15D Citrus Carton

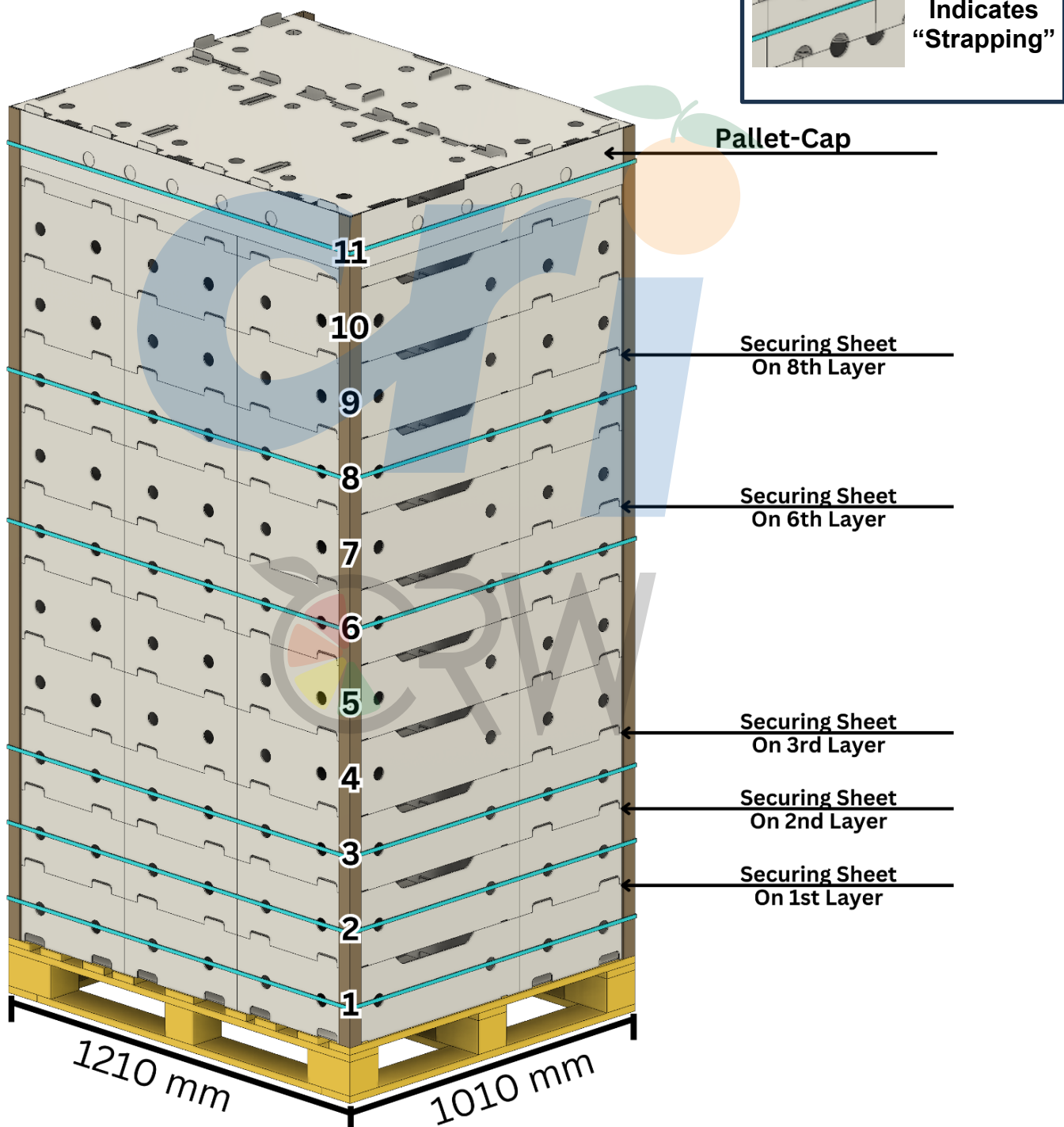
Carton Description:	E15D
Dimensions:	600 x 400 x 170 mm
Cartons per Layer:	5
Number of Layers:	13
Cartons per Pallet:	65
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 5, 8, 11
Strapping:	Layers 1, 2, 3, 5, 7, 9, 11, 13



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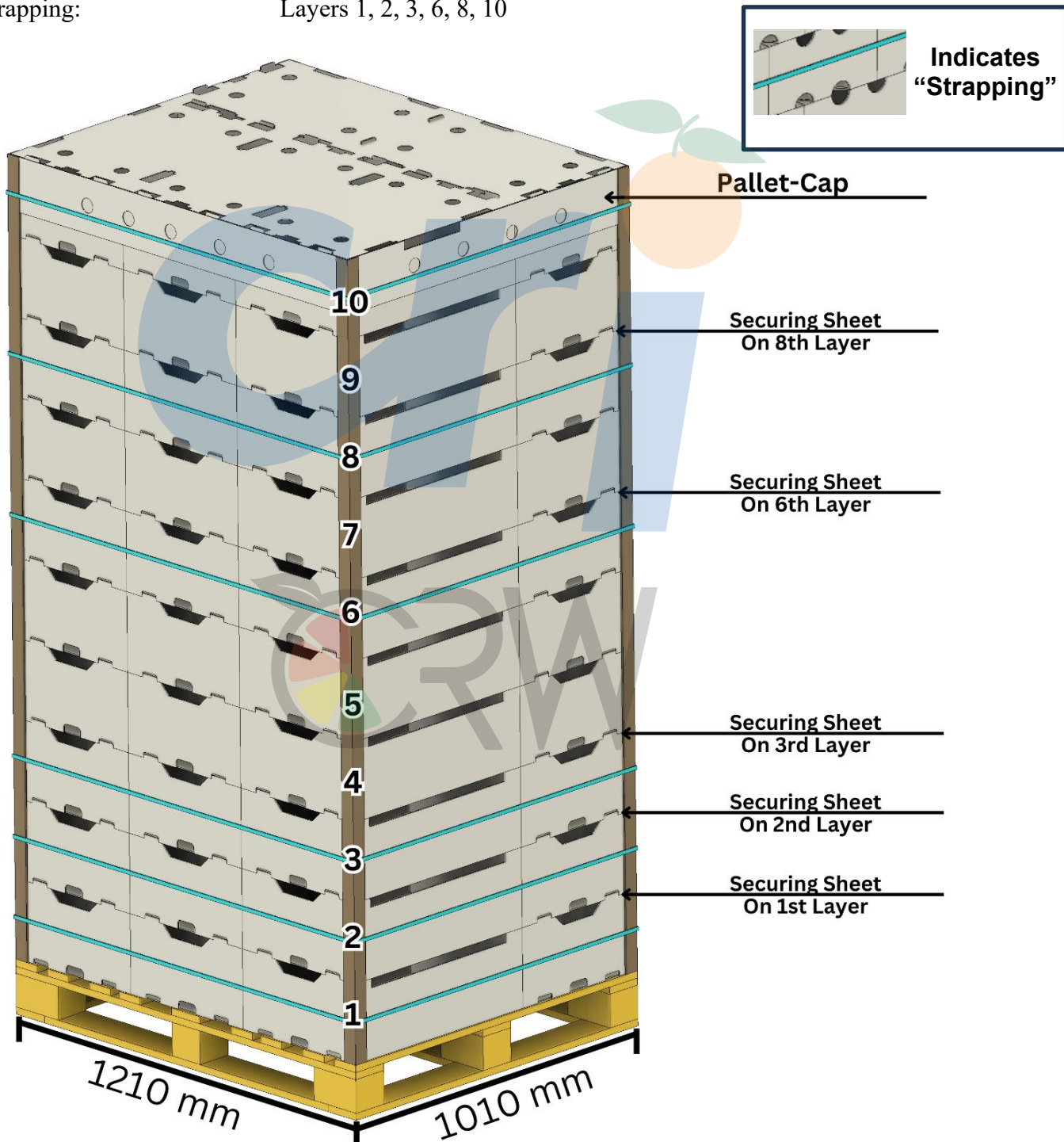
8.18 H15D Citrus Carton

Carton Description:	H15D
Dimensions:	600 x 400 x 200 mm
Cartons per Layer:	5
Number of Layers:	11
Cartons per Pallet:	55
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 6, 8
Strapping:	Layers 1, 2, 3, 6, 8, 11



8.19 G15D Citrus Carton

Carton Description:	G15D
Dimensions:	600 x 400 x 215 mm
Cartons per Layer:	5
Number of Layers:	10
Cartons per Pallet:	50
Container:	Hi-Cube
Securing Sheets:	Layers 1, 2, 3, 6, 8
Strapping:	Layers 1, 2, 3, 6, 8, 10



9 Document Control

Date	Changes from	Change Description
03/03/2026	2025 season	Significant changes have been made to the document. The information provided has been refined and information relating to board and pallet terminology has been added.
10/03/2026	Revision 1	Added new bulk bin drawings and strapping information
12/03/2026	Revision 2	Updated Images and added a description for virgin and semi-chemical paper.

