Axon™ PANEL | JH™



面板安装技术规范

2020年8月 | 新 西 兰

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THIS TECHNICAL SPECIFICATION IS FOR AXON™ PANEL DIRECT FIXED AND FIXED TO CLD® STRUCTURAL CAVITY BATTEN.

本技术规范用于以直接安装法和CLD板条空心结构安装法对AXON面板进行安装。

1 Application and scope 用途与范围

1.1 APPLICATION 应用

Axon™ Panel is manufactured by James Hardie using an advanced lightweight cement composite. Base composition is portland cement, ground sand, cellulose fibre and water. Axon Panel has vertical grooves along the panel. It is classified as lightweight wall cladding suitable for residential and light commercial buildings using timber framing.

Axon面板是由James Hardie公司生产的一种领先技术的的低密度合成水泥板。它的基本成分是波兰水泥、地表沙、纤维素纤维和水。Axon面板带有垂直的沟纹线条。相关规定将该板材归类为轻质外墙材料，适合用于住宅及使用木质框架结构的轻型商业建筑。

- Axon Panel is ideal for achieving feature walls in areas such as gable ends and entrance ways.
  Axon面板是在山墙端或入口玄关处形成景观墙的理想材料。
- Axon Panel is primed on the face to take a suitable paint finish in any colour.
  Axon面板表面经过预涂底漆，因而适用于刷上任何颜色的油漆涂层。
- Axon Panel 133 Smooth - the grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 133mm centres.
  Axon面板 133 平滑款——面板表面的纵向沟纹标准为10mm宽 * 2.25mm深，沟纹之间中心间隔为133mm。
- Axon Panel 133 Grained - the grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 133mm centres. Between the grooves is a look of traditional wood-grain texture.
  Axon面板 133 纹理款——面板表面的纵向沟纹标准为10mm宽 * 2.25mm深，沟纹之间中心间隔为133mm。沟纹之间的平面呈现一种传统的木材纹理质感。
- Axon Panel 400 Smooth - the grooves on the face panel are nominal 10mm wide x 2.25mm deep and spaced at 400mm centres.
  Axon面板 400 平滑款——面板表面的纵向沟纹标准为10mm宽 * 2.25mm深，沟纹之间中心间隔为400mm。

Specifier 项目监管方

If you are a specifier or other responsible party for a project, ensure that the information in this document is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

如果您是建筑项目的监管者或其他责任方，请确保您所计划的用途与本文件中所陈述的信息一致，如有超出所述用途的部分，请确保加以具体的工程设计并提供设计详图。

Installer 项目施工方

If you are an installer ensure that you follow the design, moisture management principles, associated details and material selection provided by the designer. All of the details provided in this document must be read in conjunction with this specification.

如果您是建筑项目的施工方，请确保遵循设计师及这本James Hardie技术规范中的规定，包括项目设计、湿度控制方案、相关数值及物料选择方面的规定。本手册中的所有详图都应结合工程本身的规范说明进行解读。

Make sure your information is up to date
确保您的信息是最新的

When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or you need more information, visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

当您需要讲解或安装James Hardie的产品时，请确保您手头拥有最新的技术手册。如果您不确定自己的手册是否是最新的，或需要更多信息,请登录 www.jameshardie.co.nz网站，或拨打0800 808 868电话，向Ask James Hardie™ 咨询。

1.2 SCOPE 范围

The scope of this specification for the use of Axon Panel is limited to buildings which fall within the scope limitations of 'Acceptable Solution E2/AS1 paragraph 1.1' of the New Zealand Building Code (NZBC).

本技术规范对Axon面板的应用讲解仅限于《新西兰建筑规范(NZBC)》合格方案第1.1部分E2/AS1条款中所列的建筑种类。

This document is intended for use by architects, designers and specifiers who may be involved with the specification of Axon Panel.

本文件旨在供建筑师、设计师和工程监管者等可能参与Axon面板使用讲解的人群阅读。

This manual covers the use of Axon Panel for both construction methods i.e. direct fixed to framing or cavity construction, used in external walls of timber framed buildings up to 2.5kPa.

本手册包含了Axon面板的两种施工方式，即直接固定在物体框架上或板条空心施工法，在风压小于等于2.5Pa地区的木框架结构建筑上作为外墙的安装。

Please refer to E2/AS1 for further information regarding the selection of construction methods to be used for fixing claddings.

关于安装外墙的两种施工方式的选择，请参阅合格方案的E2/AS1条款。

1.3 DETAILS 详图

Various Axon Panel figures are provided in the Details section of this document. This specification and details in dwg, dxf, jpg and pdf file format are also available for download at www.jameshardie.co.nz.

Axon面板的各种详细图解都可在本文档的"详图"部分找到。您也可以前往我们的网站www.jameshardie.co.nz，那里可下载到本文档及详图的dwg, dxf, jpg及pdf格式版本。

All dimensions shown are in millimetres unless noted otherwise.

除特殊标明单位处之外，详图中所有其它尺寸默认单位为毫米。

1.4 SPECIFIC DESIGN 特殊设计

For use of Axon Panel outside this published scope, the architect, designer or engineer must undertake specific design.

For advice on designs outside the scope of this specification, Ask James Hardie on 0800 808 868.

如要将Axon面板应用于超出本文档所述使用范围的其它用途，则建筑师、设计师或工程师必须进行相应的具体设计。若想就超

出本规范范围的设计的得到更多建议，请致电0800 808 868，向Ask James Hardie™ 咨询。

2 Design 设计

2.1 COMPLIANCE 达标情况

Axon Panel complies with E2 of the NZBC as an alternate solution.
Axon面板作为一种可选方案，符合NZBC标准中E2条款的要求。

Axon Panel cladding has been tested as per E2/VM1 of the NZBC and it passes the test performance requirements. Axon Panel also complies with durability requirements of 'B2' clause of the NZBC.
Axon面板经过了按照NZBC标准中E2/VM1部分进行的测试，并通过了该测试中所有的性能检测要求。同时，经测试Axon面板也符合NZBC中B2——耐久性条款的要求。

2.2 RESPONSIBILITY 责任

The specifier or other party responsible for the project must run through a risk matrix analysis to determine which construction method is to be used. The designer must also ensure that the figures published in this specification are appropriate for the intended application and that additional detailing is performed for specific design or any areas that fall outside the scope of this specification. The designers should ensure that the intent of their design meets the requirements of the NZBC.
施工监管方或其他责任方必须经过风险矩阵分析，决定使用哪种施工方法。同时设计师必须确保所计划的工程用途与本文件中所陈述的信息及详图一致，并对额外增加的或特殊设计的部分加以额外详细说明及提供详图。如有超出本施工规范的描述及详图之外的用途，则建筑师、设计师或工程师必须进行具体的工程设计，并确保所有设计符合新西兰建筑规范（NZBC）的要求。

All New Zealand Standards referenced in this manual are current edition and must be complied with.
本手册中引用的所有“新西兰标准”都指现行版本，须严格遵守。

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.
James Hardie执行严格的质量检验程序，以确保出厂的任何产品都符合我们的质量要求。在安装前，确认产品符合客户的审美要求是施工者的责任。 一旦安装完成，James Hardie不负责修正由此造成的明显的美学偏差问题。

2.3 SITE AND FOUNDATION施工现场与地基

The site on which the building is situated must comply with the NZBC Acceptable Solution E1/AS1 'Surface Water'.

Foundations design must comply with the requirements of NZS 3604 'Timber-framed Buildings' or be as per specific engineering design.
建筑物所在的位置必须符合NZBC合格方案中E1/AS1条款“地表水”部分的要求。地基的设计必须符合《新西兰3604号国家标准（NZS3604)》中“木结构框架建筑”部分的要求，或符合具体的工程设计。

The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation in accordance with the NZBC requirements.
与房屋相连接的已加工地面，其坡度必须由房屋起向下倾斜，以符合NZBC标准的要求，避免造成积水。

2.4 SURFACE CLEARANCES 接地间隙

The clearance between the bottom edge of cladding and paved/unpaved ground must comply with section 9.1.3 of E2/AS1. The finished floor level must also comply with these requirements These clearances must be maintained throughout the life of the building.
护墙板下缘与已铺／未铺地面的间隙必须符合NZBC合格方案E2/AS1部分第9.1.3条中，对已铺地面和未铺地面的相应规定。已竣工地板的高度也必须符合以上规定。并且须要一直保持这一间隙的标准，贯穿建筑物寿命始终。

Axon Panel must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by NZS 3604.
根据NZS 3604的规定，Axon面板必须用于建筑物水泥主墙板的外层，与水泥墙板保持至少50mm的距离

Axon Panel must have a minimum clearance of 100mm from paved ground, and 175mm from unpaved ground. On roofs and decks, the minimum clearance must be 50mm.
Axon面板下缘必须与已铺地面保持至少100mm的距离，与未铺地面保持至少175mm的距离。在屋顶及露台处，该距离应至少为50mm。

Do not install external cladding such that it may remain in contact with water or ground. Refer Figures 3 and 18.
不要将外墙板材安装在可能持续接触到水或地面的地方。参见图3和图18。

2.5 MOISTURE MANAGEMENT 湿度控制

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design.
发现及控制由某种建筑设计而产生的湿度风险是施工监管者的责任。

Wall construction design must effectively manage moisture, considering both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled.
墙体结构的设计必须通过考量室内外的环境因素而有效控制室内湿度，特别时那些由于风向原因而容易灌入雨水的建筑。同时建筑应当充分通风，以减少由于水汽凝结而产生的湿气聚集，对于那些经常使用人工制冷或制热的建筑尤其需要注意。

Walls must include those provisions as required by the NZBC Acceptable Solution E2/AS1 'External Moisture'. In addition all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in external walls, must comply with the requirements of relevant standards and the NZBC.

墙体结构需要符合NZBC合格方案第E2/AS1部分的相关规定。另外，所有的不封闭墙体、被穿透墙体、墙体接缝、墙体连接，及窗台、窗楣和窗户边框处，都必须安装合适的防水板或隔水层。墙体外侧的其他用于控制室内湿度的材料、部件及其安装方式，都须要符合NZBC的相关标准要求。

For further guidance on designing for weathertightness refer to BRANZ Ltd, and the Ministry of Business Innovation and Employment (MBIE) updates on the following websites respectively, www.branz.co.nz and www.building.govt.nz

欲了解更多有关防雨防潮设计的信息，请到www. branz.co.nz参阅新西兰建筑研究协会(BRANZ)的资料更新，或到www. building.govt.nz参阅新西兰商业创新与就业部 (MBIE)提供的最新信息。

2.6 STRUCTURE 结构

2.6.1 Timber framing 木框架结构

Timber-framed buildings must be designed in accordance with NZS 3604 (Timber-framed Buildings). When the framing is provided as per the specific engineering design, the framing stiffness must be either equivalent to or more than the stiffness requirements of NZS 3604.
木框架结构建筑物必须依照NZS3604标准(“木框架结构建筑”部分)的规定进行设计。当建筑物需要进行特定的工程设计时，其框架结构硬度必须大于等于NZS3604有关框架结构的要求值。

For timber frame walls longer than 12m it is best pratice to allow for construction joints to accommodate movements generated due to timber shrinkage or deflections etc.
对于超过12米长的木框架墙体，最佳施工方式是调节工程接缝，从而为由于木材缩小及负重变形等所导致的移动错位留出余地。

2.6.2 Wind loading 风荷载

Axon Panel is suitable for use in all wind zones in New Zealand up to and including EH as defined in NZS 3604.
Axon面板可适用于NZS 3604中所定义的等于或低于EH级别的风区。

A specific design is required for all situations where the buildings falls outside the scope of NZS 3604 and E2/AS1.
对于所有超出NZS 3604和E2/AS1所规定范围之外的建筑情况，都必须进行特殊设计。

2.7 BRACING 结构支撑

Axon Panel direct fixed can be used to achieve structural bracing when fixed with stainless steel HardieFlex™ nails. For further information refer to the James Hardie Bracing Design Manual.
使用HardieFlex™不锈钢钉子进行安装的Axon面板可起到结构支撑的作用。更多信息请参阅《James Hardie支撑设计手册》（James Hardie Bracing Design Manual）。

Axon Panel installed to CLD Structural Cavity Battens as per this specification cannot be used to achieve structural bracing. However, bracing can be achieved by using James Hardie rigid air barrier board installed direct to framing instead of a flexible underlay or by using Villaboard® Lining bracing system on the internal face.
按照本规范安装在CLD板条空心结构上的Axon面板并不能起到任何结构支撑的作用。但是，通过用James Hardie 刚性密封板替代常规的软性隔层，或在内墙墙面上使用Villaboard®内衬支撑系统，可以达到支撑的效果。

2.8 FIRE RATED WALLS 墙面防火等级

Axon Panel when direct fixed with HardieFlex nails to external walls can achieve fire ratings up to 60/60/60 to comply with C/AS1 of the NZBC when the walls are constructed in accordance with the current James Hardie ‘Fire and Acoustic Design Manual’.
只要按照现行的《James Hardie消防与隔音设计手册》（JamesHardie ‘Fire and Acoustic’ Design Manual）的指导进行安装，并以HardieFlex钉子用直接安装法固定在外墙上的的Axon面板都可达到60/60/60之高的防火等级，符合NZBC中的C/AS1 条款。

When using Axon Panel fixed to CLD Structural Cavity Battens, a fire rating of up to 60 minutes can be achieved using RAB® Board in conjunction with the fire rated system requirements as specified in the James Hardie ‘Fire and Acoustic Design Manual’. Ask James Hardie on 0800 808 868 for further information.
当Axon面板是安装在CLD空心结构板条上时，如果使用RAB刚性密封板并遵照《James Hardie消防与隔音设计手册》的要求，则可达到60分钟的防火等级。更多信息请致电0800 808 868向Ask James Hardie咨询。

Axon Panel is classified as a non-combustible material suitable for use on walls close to boundary.
Axon面板被划分为不可燃物(Non-combustible material)，可以被用于墙体边界。

2.9 ENERGY EFFICIENCY 隔热能效

External walls constructed as per this technical specification using Axon Panel, bulk insulation, where the area of glazing is 30% or less of the total wall area comply with the requirements for walls in the NZBC Acceptable Solution H1/AS1 (NZBC Clause H1 Energy Efficiency), Replacement Table 1. To meet thermal insulation requirements for the construction, the bulk insulation as specified in Table-1 must be used. This insulation may be substituted with insulations having higher R-values. The thermal insulation of a wall gets affected when the depth of the timber framing is increased or decreased. The calculation used in Table 1 is based on a timber framing size 90 x 45mm and using an internal lining material such as James Hardie Villaboard® Lining or a 10mm plasterboard.

按照本技术手册的说明安装了Axon面板、并装有主体保温层的墙体，只要玻璃面积不超过所有墙体总面积的30%， 即可符合NZBC合格方案中H1/AS1部分 (NZBC 第H1条‘隔热能效’)”中“替换表1”对墙体保温的要求。为达到建筑物最低保温要求，必须按照表1的规定为墙体安装主体保温层。也可使用热阻更高的隔热材料替代该保温层。墙体的隔热效果会受到木框架厚度的增减，或墙筋间距大小的影响 。表1算式的前提是：木框架尺寸90 x 45mm，屋内墙面材料为JamesHardie Villaboard® 内墙板或10mm石膏板或同等材料。

Table 1 **表1**

Insulation capability 隔热能效		
Climate Zone 气候区	**Construction R-Value Requirement** 建筑物热阻指数（R Value) 要求	**Minimum R-Value of Insulation Required** 隔热层最小热阻要求
1 and 2 1区和2区	1.9 m^2 ºC/W	#R2.0
3	2.0 m^2 ºC/W	#R2.2

Total construction R-Value depends on the insulation material used and the framing ratio. The insulation material R-Values specified in this table are for studs spaced at 600mm c/c and nogs spaced at 800mm c/c.
一个建筑物的总热阻指数是由所选用的隔热层材料和建筑框架结构共同决定的。上表中所列出的隔热层材料热阻值是基于前提下得出的：墙筋中心间距（centre to centre) 600mm，木钉中心间距（centre to centre) 600mm。

To achieve higher R-Values of construction the wall insulation material must be replaced with an insulation material having higher R-Values to suit the requirements.
#如欲达到更高的热阻级别，则需要选用热阻更高的隔热层材料来替换上述材料。

For further guidance on insulation requirements refer to the current edition of 'House Insulation Guide' published by BRANZ.
更多关于隔热层的指导信息，请参阅BRANZ出版的最新版本《住房隔热层指南》

3 Framing 框架

3.1 GENERAL 概述

This Axon Panel technical specification is only suitable for timber-framed buildings. Other framing materials are subject to a specific engineering design.
本册Axon面板技术规范仅适用于木质框架结构的建筑。其他框架材料的建筑则须依据其特殊工程设计进行施工。

3.2 TIMBER FRAMING 木框架结构

3.2.1 Dimensions 尺寸

A minimum 45mm wide stud is required.
墙筋的宽度必须大雨等于45mm。

3.2.2 Structural grade 木材等级

Minimum timber grade requirement is No. 1 framing grade or MSG6 as per NZS 3604. The grading of timber must comply with the AS/NZS 1748 and NZS 3631 requirements.
根据NZS 3604的规定，所使用的木材等级最低为一级木框架或MSG6级别。木材的等级必须符合AS/NZS 1748和NZS 3631的要求。

3.2.3 Durability 耐久性

The external framing must be treated to a minimum H1.2 treatment. Refer to the NZBC Acceptable Solution B2/AS1 'Durability' for further information about the durability requirements. For timber treatment and allowable moisture content information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round Sawn Timber) for minimum timber treatment selection and treatment requirements.
房屋框架所用的木材必须经过化学处理，达到至少H1.2的处理程度。更多关于耐久性要求的详细信息，请参阅NZBC合格方案B2/AS1“耐久性”部分。有关木材处理及木材含水量的可接受范围的信息，请参阅NZS 3602（建筑用途的木材及木质产品）以及NZS 3640（原木及锯木的化学防腐），查看木材处理程度最低限值及处理规范的信息。
Also refer to the framing manufacturer's literature for further guidance on timber selection. Framing must be protected from moisture at site in accordance with the recommendation of the framing manufacturers.
另请参阅木框架生产商所提供的说明材料，获得关于选择木材的进一步指导。在施工现场，必须按照生产商的建议对木框架材料进行防潮保护。

3.2.4 Frame construction 框架结构

The framing must fully support all panel edges. The framing must be rigid and not rely on the cladding panel for stability.
框架必须完全支撑所有的板材边缘。框架必须是刚性固定的，且不能倚靠外墙板的支撑。

Timber framing sizes and its set-out must comply with NZS 3604 and as specified in this specification.
木框架材料的尺寸和布局都必须符合NZS3604标准的规定并遵照生产厂商的具体说明。

In case of gable end trusses sitting on top plates of the external wall frame, the frame size must comply with the minimum timber sizes stipulated for wall frames in Section 8 of the NZS 3604.

For timber frame walls longer than 12m, it is best practice to allow for construction joints to accommodate movements generated due to timber shrinkage or deflections generated by loadings etc.
如果山墙一侧的桁架处于外墙框架的顶板上，那么框架结构的尺寸必须符合NZS 3604第8部分中对于墙体框架木材最小尺寸的规定。对于超过12米长的木框架墙体，最佳施工方式是调节工程接缝，从而为由于木材缩小及负重变形等所导致的移动错位留出余地。

3.3 STEEL FRAMING 钢框架结构

Refer to James Hardie Steel Frame Technical Specification about the installation of Axon Panel to steel frame.
请参阅《James Hardie钢框架结构技术规范》，得到关于将Axon面板安装在钢框架结构上的信息。

3.4 CONSTRUCTION METHODS 施工方法

3.4.1 Direct fixed 直接安装法

For direct fixed construction method the following framing is required:
当使用直接安装法施工时，框架须遵循以下要求：

- Studs at 600mm c/c maximum
  墙筋中心距离不超过600mm
- A minimum 45mm stud width is required at vertical panel joints
  在板材的垂直接缝处，墙筋宽度不小于45mm
- Nogs/dwangs are required at 1200mm c/c maximum.
  木钉／转动杆的中心距离不超过1200mm。

3.4.2 CLD Structural Cavity Batten 板条空心结构

For cavity construction method the following framing is required:

当使用板条空心结构时，框架须遵循以下要求：

- When studs are spaced at 600mm centres maximum, the nogs/dwangs must be provided at 800mm centres maximum
  当墙筋中心距离不大于600mm时，木钉／转动杆中心距离不得大于800mm。
- When studs are spaced at 400mm centres then the nogs/dwangs may be provided at 1200mm centres
  当墙筋中心距离为400mm时，则木钉／转动杆中心距离可以为1200mm。
- An extra stud is required in internal corners. Refer to Figure 21.
  房屋阴角处需要额外多安装一枚木钉。参见图21.

3.5 TOLERANCES 可允许误差

In order to achieve the required performance and an acceptable wall finish, it is imperative that framing is straight and true.
为了完工后达到理想效果和符合标准的外墙，框架必须保证水平和竖直。

Framing tolerances must comply with the requirements of NZS 3604. All framing shall be made flush.
框架的误差必须符合NZS 3604的要求。所有的框架都必须齐平。

4 Preparation 准备工作

4.1 FLEXIBLE UNDERLAY OR HOMERAB PRE-CLADDING 弹性隔层和HOMERAB内衬板

Flexible underlay or HomeRAB® Pre-Cladding must be provided as per the requirements of the NZBC Acceptable Solution E2/AS1 'External Moisture' and NZS 3604. The flexible underlay must comply with Table 23 of E2/AS1 and AS/NZS 4200.1. The flexible underlay must be fixed in accordance with E2/AS1, NZS 3604 and AS/NZS 4200.2 and the underlay manufacturer's recommendations.

根据NZBC合格方案E2/AS1中E2部分"外部湿度"及NZS 3604的要求，建筑物必须铺设弹性隔层或HOMERAB®内衬板。对弹性隔层材料的选择必须遵照该方案E2/AS1中表23和AS/NZS 4200.1的要求。

弹性隔层的安装必须符合E2/AS1、NZS 3604 和 AS/NZS 4200.2 的要求以及隔层生产商的建议。

Walls which are not lined on the inside face (e.g. garage walls or gable ends) must include a rigid sheathing or an air barrier behind the cladding which complies with the requirements of the NZBC Acceptable Solution E2/AS1 Table 23. For attached garages, flexible underlays must be selected in accordance with the NZBC Acceptable Solution E2/AS1, paragraph 9.1 3.4. HomeRAB Pre-Cladding is suitable for use in these applications. It must be installed in accordance with the James Hardie Rigid Air Barriers installation manual.

对于无内衬墙板的墙体（如车库墙或山墙），必须在外墙后面安装一层刚性隔板或密封层，以符合NZBC合格方案E2/AS1部分表23的要求。对于与房屋主体相连的车库，选择的弹性隔层须要符合NZBC合格方案E2/AS1部分第9.1.3.4段的要求。James Hardie生产的HomeRAB内衬板符合以上规范，且适用于以上情况。请务必按照《James Hardie刚性密封板安装手册》的指导进行安装。

4.2 RIGID AIR BARRIER 刚性密封板

For EH wind zone or Specific Engineering Design projects where the wind pressures are higher than 1.5kPa (ULS), RAB Board (6mm) must be used. Refer to the James Hardie rigid air barriers installation manual for information regarding its installation. For buildings within the scope NZS 3604 HomeRAB Pre-Cladding Lining (4.5mm) or flexible underlays can be used.

对于EH风区以及位于风压高于1.5kPa 地区的特殊工程设计项目，必须使用James Hardie RAB®刚性密封板替代弹性隔层。请参阅《James Hardie刚性密封板安装手册》以获得关于安装的信息。对于在NZS 3604范围以内的建筑物，则可以使用4.5mm的HomeRAB预置隔层或者弹性隔层。

4.3 VENT STRIP 通风带

The James Hardie uPVC cavity vent strip must be installed at the bottom of all walls constructed using the drained and ventilated cavity construction method. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities. James Hardie uPVC vent strip has an opening area of 1000mm²/m length.
所有采用排水通风式的空心结构法建筑的房屋，必须在所有墙体的底部及墙体所有开口处安装James Hardie uPVC空心通风带。请务必保持通风口开口处无遮挡、无堵塞，以便空心腔顺利排水和通风。James Hardie uPVC通风带的开口面积为1000mm²每延米。

4.4 FLASHING 防水板

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to panel installation. Please refer to moisture management requirements in Clause 2.5. The flexible underlay or RAB Board must be appropriately taped around the penetrations and lapped/taped to flashings. Materials must be lapped in such a way that water tracks down to the exterior of a building. James Hardie will assume no responsibility for water infiltration within the wall due to poor installation of flashings or flexible underlays. The selected flashing materials must comply with the durability requirements of the NZBC. For information refer to Table 20 of clause E2 of the NZBC.

所有的不封闭墙体、被穿透墙体、墙体接缝、墙体连接，及窗台、窗楣和窗户边框处，都必须在安装Axon面板之前安装防水板。请参阅本手册2.5部分。必须使用防水胶带将弹性隔层妥善地与墙体穿透处和连接处的防水板相接合。材料重合处必须搭接良好，保证水流是沿着弹性隔层或刚性密封板的外表面向下流。对于因不当安装防水板或弹性隔层而导致的墙体渗漏问题，James Hardie不承担任何责任。建筑物所选的防水材料必须符合NZBC中对于耐久性的要求。更多信息请参阅NZBC第E2条款中的表20。

When using a James Hardie rigid air barrier board the entire framing around window opening must be sealed with a flashing tape. The tape must be finished over the face of James Haride rigid air barrier board. The flashing tapes like SUPER-STICK Building Tape® by Marshall Innovations or 3M™ All Weather Flashing Tape 8067 by 3M™ are recommended for use with James Hardie rigid air barrier board. Refer to the tape manufacturer's literature for further information regarding their installation.

当使用James Hardie刚性密封板时，墙体开口处的所有木框架结构必须用防水胶带封好。胶带必须延伸粘贴到刚性密封板的外表面。推荐与James Hardie刚性密封板搭配使用的防水胶带有Marshall Innovations出品的SUPER-STICK Building Tape 或3M™ 出品的3M™ All Weather Flashing Tape 8067。更多关于防水胶带安装的信息请参阅制造商的相关文档。

4.5 JUNCTIONS AND PENETRATIONS 接缝与穿透

Refer to Clause 2.5 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. James

Hardie has developed the window details for Axon Panel which meet the requirements of E2 'External Moisture', an approved document of the NZBC. Refer to Figures 8 to 10 and 24 to 26.

参阅本规范第2.5部分关于湿度控制的要求。所有门窗必须根据本规范的要求进行细化处理。请参阅图8至图10及图24至图26中为了安装Axon面板而进行的窗户细节处理的示例，该示例符合NZBC核准文件中E2部分对外部湿度控制的要求。

5 Batten installation 板条的安装

Note: This specification is not for timber cavity battens. Refer to separate technical specification from James Hardie.
注意：本规范不适用于木质板条空心结构。如有需要请参阅James Hardie的其它技术规范。

5.1 CLD STRUCTURAL CAVITY BATTENS 空心结构板条

Buildings with a risk score of 7-20 calculated in accordance with Table 2 of Acceptable Solution E2/AS1 of the NZBC, require Axon Panel to be installed on a cavity. CLD Structural Cavity Battens provide airspace between the frame and the panel and are used to fix cladding into them.
根据NZBC可接受方案E2/AS1中表2的划分，属于风险等级7 – 20级的建筑物需要将Axon面板安装在板条空心结构上。CLD空心结构板条能够在结构框架和外墙板之间制造一个空气层，且可将外墙板固定在其板条上。

CLD Structural Cavity Battens are made of a low density fibre cement formulation which enables them to have extra strength and durability. CLD Structural Cavity Batten is sealed on all sides and is suitable to fix Axon Panel installed as per this technical specification, and it can withstand the design wind pressures exerted on a cladding within the scope of NZS 3604.
CLD空心结构板条由低密度纤维水泥配方制成。CLD空心结构板条的所有表面都经过密封，且适用于按照本规范的要求将Axon面板固定于其上。它可以承受NZS 3604所描述的外墙风压范围。

The CLD Structural Cavity Battens are made 2450mm long and 19mm thick. The battens are fully sealed on all sides.
CLD空心结构板条长2450mm，厚19mm。板条的所有表面都预涂了底漆进行封闭。

5.2 BATTEN LAYOUT 板条布局

CLD Structural Cavity Battens must be fixed to the wall framing over flexible underlay or James Hardie rigid air barrier. The smoother face of batten should face towards the cladding.
CLD空心结构板条必须安装在铺设有弹性隔层或者James Hardie刚性密封板的墙体结构上。板条较光滑的一面需朝向外墙板。

CLD Structural Cavity Battens are suitable to withstand wind pressures up to 2.5kPa (ULS). For batten fixing, refer to section 5.4. Ensure the battens are straight and provide a flat surface to fix Axon Panel to. Site cut ends of battens must be sealed on site with Dulux® Acraprime 501/1 sealer or Resene Quick Dry.
CLD空心结构板条可承受最高达2.5kPa (ULS)的风压。关于板条的安装方法请参阅本手册5.4部分。请确保所有板条笔直齐平，从而为安装Axon面板提供一个平整的表面。施工现场切割的板条端口需用Dulux. Acraprime 501/1密封胶或Resene Quick Dry进行密封。

The battens are run continuously over the studs but they must not be run continuously over the floor joists. There must be a 15mm gap between the battens at floor joist level to allow for structural shrinkages and deflections. Refer to Figure 27.
板条需连续不断地安装在墙筋上，但在一层地板龙骨层必须留有一个15mm的空隙，以便为龙骨的结构收缩变形留出余地。参见图27。

CLD Structural Cavity Battens can be butt jointed over the studs within the floor height. The batten ends must be cut between 20º to 45º and be installed in a way that the butt joint deflects the moisture to the exterior. The ends must be sealed and jointed with the adhesive sealant before butting them together. Refer to Figure 23.
CLD空心结构板条也可以尾接的方式安装在地板高度的墙筋上。板条的末端必须切割成20° 至45° 角的斜面，以引开外部的湿气。切割后的末端必须涂上密封胶，并将涂有黏性密封胶的尾接件安装在末端。参见图23.

The designer must ensure that the CLD Structural Cavity Battens are not used in situations where design wind pressures are above 2.5kPa (ULS).
设计师必须确保CLD空心结构板条不被用于设计风压大于2.5kPa (ULS) 的情况中。

CLD Structural Cavity Battens must always be at least 300mm in length.
CLD空心结构板条不可切割成小于300mm的长度使用。

5.3 INTERMEDIATE SUPPORT 居中支撑

Where studs are at 600mm centres an intermediate means of restraining the flexible underlay and insulation from bulging into the cavity shall be installed. An acceptable method to achieve this is using a:
当墙筋的中心间距达到600mm时，需要使用居中支撑，以防止预置隔层和保温棉向空心方向鼓胀。有效合格的处理方法有以下两种，请选择使用其一：

- 75mm galvanised mesh; or
  使用75mm的镀锌丝网；或
- polypropylene tape at 300mm centres fixed horizontally and drawn taut.
- 采用300mm的聚丙烯胶带横向固定并拉紧

No intermediate supports are required:
以下情况无需居中支撑：

- when studs are spaced at 400mm centres; or
  墙筋中心间距在400mm以内；或
- when RAB Board instead of flexible underlays are used.
- 使用刚性密封板代替了预置隔层。

5.4 BATTEN FASTENERS 板条固件

The CLD Structural Cavity Batten must be fixed to the framing as specified in Table 2. The fasteners must be driven at a minimum distance of 50mm from the batten ends.
CLD空心结构板条必须按照表2的要求用相应固件安装在墙筋上。固件的安装必须距离板条末端至少50mm。

Table 2 **表2**

Batten fixing 板条的固定				
Fixing Type 固定方式	**Framing** 框架	**Basic Wind Pressure kPa (ULS)** 基本风压kPa (ULS)	**Batten centres max. (mm)** 板条最大中心距离 (mm)	**Fixings centres max. (mm)** 固件最大中心距离 (mm)
65mm x 2.8mm RounDrive ring shank nail hot dip galv./ s.steel 65 x 2.8m的热浸镀锌或钢质环纹螺丝钉	Timber 木质框架	Up to 1.5 (Up to and including VH wind zone) 不高于1.5 （等于或低于VH风区）	600	250
		Up to 2.5 (>VH wind zone) 不高于2.5（高于VH风区）	400	200
50mm x 9-10g Countersunk head steel screw class 3/4 9-10克的50mm沉头钢制螺丝钉 螺旋级别3/4	*Steel 0.55 to 1.6mm BMT 钢制框架 0.55至1.6mm BMT	Up to 1.5 (Up to and including VH wind zone) 不高于1.5 （等于或低于VH风区）	600	250
		Up to 2.5 (>VH wind zone) 不高于2.5（高于VH风区）	400	200

For fastener durability information, refer to Clause 6.2 of this document.
关于固件的耐久性信息，请参阅本手册第6.2部分。

CLD Structural Cavity Battens less than 400mm in height must have fixings at maximum 150mm centres.
长度小于400mm的CLD空心结构板条需要以不超过150mm的中心距离进行装钉。

Battens must be fixed over studs.
板条必须装钉在墙筋上。

6 Panel fixing 面板的安装

6.1 GENERAL 概述

Axon Panel must be kept dry and under cover whilst in storage or during the installation. Every endeavour must be made to keep framing dry once panel fixing commences. All site-cut panel edges must be sealed prior to installation.
Axon面板在储存仓库中及施工过程中都必须保持干燥。一旦安装面板的施工开始，必须尽最大努力保持板条的干燥。所有在施工现场切割过的板材，需于安装前在切割端涂上密封涂料。

- The shiplap jointing of panels is only suitable for vertical fixing of panels.
  鱼鳞板搭接安装法仅适用于面板的纵向安装。
- Do not fix in the groove of Axon Panel.
  不要在 Axon面板的凹纹上入钉。
- Ensure the sheets are from the same batch.
  确保所安装的板材是同一批次。
- It is recommended to fix from the centre of the panel and work outwards.
  建议从板材的中心开始装钉，然后向两边延伸。
- Do not overdrive fasteners.
  不要将固件拧得过紧以致滑扣。
- Fixings must be finished flush with the panel surface.
  入钉后钉头应与板材表面齐平。

6.2 FASTENER DURABILITY 固件的耐久性

Fasteners must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing material to be used in relation to exposure conditions and are summarised in Table 3.
固件必须符合NZBC关于耐久性的最低要求。NZS 3604详细规定了用于室外暴露环境下的固件材质的要求，详见表3。

Table 3 **表3**

Exposure conditions and nail selection prescribed by NZS 3604 NZS3604对室外暴露环境的定义及钉子选用的要求		
NAIL MATERIAL 钉子材质		
Zone D* D区	Zone C* outside sea spray zone, Zone B and Geothermal hot spots B区、除去潮水区之外的C区，以及地热活跃区	Bracing — All Zones 用于加固——所有区域
Grade 316 Stainless 316型号不锈钢	Hot-dipped galvanised or Grade 316 stainless 热浸镀锌或316型号不锈钢	Grade 316 Stainless 316型号不锈钢

*(Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made). Microclimate conditions as detailed in NZS 3604, paragraph 4.2.4 require SED.
*(C区是指根据对该地域情况的考察，有必要使用更高耐久性的产品，因而应当慎重选材)。如果建筑坐落于NZS 3604中第4.2.4段中列出的那些对微气候区域，则需要进行特殊工程设计（SED)。

Also refer to the NZBC Acceptable Solution E2/AS1 Table 20 and 21 for information regarding the selection of suitable fixing materials and their compatibility with other materials.
另请参阅“NZBC合格方案‘E2/AS1款’的表20和21，了解如何选择适当的固件材料及其与其它材料的兼容性等信息。

6.3 FASTENER — TYPE, SIZE AND LAYOUT 固件的类型、尺寸和布局

6.3.1 Direct fix 直接安装法

Axon Panel must be fixed to framing using the fixings as specified in Table 4 below and follow the edge distance required for nails as shown in the details. Refer to Figures 2 and 4.
Axon面板必须按照以下表4的要求安装在框架上，并遵照详图中所示的钉子边缘间距进行固定。参见图2和图4.

Table 4 **表4**

Panel fixing 面板的安装	
Direct Fixed to frame USING HARDIEFLEX NAILS over flexible underlay **直接安装法——用 HARDIEFLEX钉子固定在弹性隔层之上**	
40 x 2.8mm HardieFlex nails. 40*2.8mm HardieFlex 钉子	Fix @ 200mm centres to all framing. Stud width 45mm min. required at vertical joint. 以200mm的中心间距装钉在所有框架上。纵向连接处的墙筋宽度应不小于45mm。

DIRECT FIXED TO FRAME USING BRAD NAIL over flexible underlay **直接安装法——用平头钉固定在弹性隔层之上**		
ND 50 stainless steel straight brad nail ND50不锈钢平头钉	Up to 1.5kPa (Up to and including VH wind zone) 不高于1.5 kPa（等于或低于VH风区）	Fix 150mm c/c on panel edges and intermediate framing 以150mm的中心间距装钉在面板边缘及相连接的框架上

Notes:
注意：

1. Brad nail fixing method is only suitable up to very high wind speed zones. Do not use this method for EH wind zones described in NZS 3604 or SED projects.
   使用平头钉的安装方法仅适用于风速很高的区域。在NZS 3604中所描述的EH风区及特殊设计项目中，请不要使用此方法。
2. Nails must be finished flush with panel surface.
   入钉后钉头必须与板材表面齐平。
3. Special fixing arrangements are required for bracing and fire-resistance rated wall systems.
   对于有结构支撑功能或防火等级系统的墙体，应当安排特殊的安装方法。

For more information Ask James Hardie on 0800 808 868.
欲知更多信息，请拨打0800 808 868 咨询Ask James Hardie。

When fixing the panels using nail guns, refer to the nail gun manufacturer for information about nails and the type of nail gun to be used.
当使用射钉枪安装Axon面板时，请向射钉枪制造商索取关于钉子及射钉枪种类选取的信息。

Note: Do not use 'D' head nails.
注意：请不要使用D形头钉子。

6.3.2 CLD Structural Cavity Batten Method
CLD板条空心结构安装法

This panel fixing method can be used up to 2.5kPa wind pressure. Axon Panel is only fixed into the CLD Structural Cavity Batten as per this method.
面板的这种安装法可用于风压小于等于2.5kPa的区域。若要将Axon面板安装在CLD空心结构板条上，只能应用这一种方法。

Adhesive sealant 粘合剂

A polyurethane adhesive sealant Seal N Flex-1 manufactured by Bostik or SikaFlex 11FC by Sika are recommended for use in the installation of these products. Apply a 6mm continuous bead of this adhesive sealant over the face of the CLD Structural Cavity Batten before fixing the Axon Panel. Refer to Figure 19, 20 and 21.
当安装这些产品时，推荐使用一种聚氨酯黏合剂——如Bostik出品的Seal N Flex-1或由Sika出品的SikaFlex 11FC。在CLD空心结构板条的表面上涂上6mm粗的连续不断的一条Bostik‘Seal n Flex 1’或Sika‘Sikaflex 11FC’ 黏性密封胶（Adhesive sealant），而后再安装Axon面板。详见图19、20和21。

When using external box corner flashing, use a 10mm thick bead of adhesive over the aluminium box corner flanges. Refer to Figure 22.
当使用阳角箱角防水配件时，在铝制箱角的上缘涂上10mm粗的一段粘合剂。参见图22.

Note: Do not use excessive adhesive.
注意：不要使用过量的粘合剂。

6.3.3 Cavity construction using timber cavity battens
木质板条空心结构

When fixing Axon Panel using timber cavity battens, these details are available at www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.
如果要将Axon面板安装在木制空心结构板条上，请登陆www.jameshardie.co.nz参阅相关详图，或致电0800 808 868向Ask James Hardie咨询。

6.4 PANEL LAYOUT 面板的布局

All panel edges must be supported by the framing. The shiplap joint must be formed vertically. The framing centers must be checked before the panel installation.
所有的面板边缘都必须有框架进行支撑。鱼鳞板搭接的安装方法仅适用于纵向安装。在安装面板之前必须先检查框架板条的中心距离。

Fix Axon Panel to CLD Structural Cavity Battens using one of the following fixings specified in Table 5. The edge distance at panel corner must be minimum 75mm vertically from panel corners. Refer Figure 17.
当将Axon面板安装在CLD空心结构板条上时，请选用以下表5所示安装法中的一种。纵向相接的板材边角距离应不小于75mm。参阅图17.

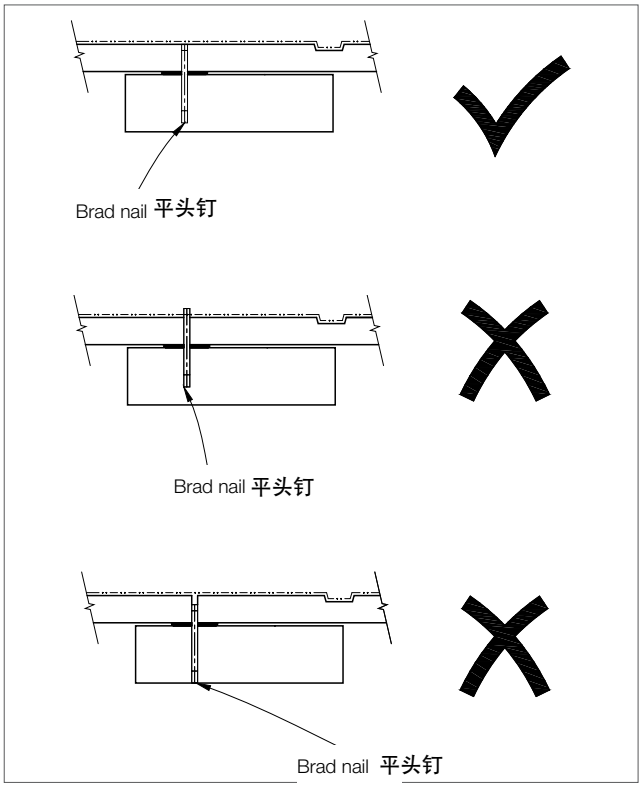


Table 5 **表5**

Axon面板的安装		
Types of fixings to be used with adhesive sealants 配合粘合剂使用的装钉方法	**Suitable up to Basic Wind Pressure kPa (ULS)** 适用的基本风压 kPa (ULS)	**Fixing to CLD Structural Cavity Battens c/c (mm)** 装钉在CLD空心结构板条上的中心距离（mm）
C-25 straight 'T'- Head stainless steel brad nail C-25直钉T形头不锈钢平头钉	1.5 (Up to and including VH wind zone) （等于或低于VH风区）	150
25 x 2.5mm annular threaded fibre cement nail 25 x 2.5mm环纹纤维水泥钉	2.5 (> VH wind zone) （高于VH风区）	200
25mm x 10g counter sunk screw class 3/4 or stainless steel 10克的25mm沉头钢制螺丝钉螺旋级别3/4或不锈钢钉子	2.5 (> VH wind zone) （高于VH风区）	200

Notes:

1. Brad nail fixing method is only suitable up to 1.5kPa.
1.使用平头钉的安装方法仅适用于风压为1.5kPa或以下的地区。

2. Nails must be finished flush with panel surface.
入钉后钉头必须与板材表面齐平。

7 Jointing 连接

7.1 GENERAL 概述

Axon Panels are fixed to form a shiplap joint at vertical edges. The panels have factory-made edges to suit this jointing.
Axon面板的安装会形成一种纵向鱼鳞板搭接的效果。面板在出厂时就带有适用于这种连接方式的纵向边缘特征。

7.2 VERTICAL JOINT 纵向连接

Direct fixed 直接安装法

Axon Panels are shiplap jointed keeping a gap of 1-2mm between the panels. A 50mm wide 3259 Inseal sealing tape is used under the joint over the face of the timber stud where direct fixed construction method is used. A flexible sealant must be applied to the full length of the shiplap joint before the panels are jointed. The edge distance for a HardieFlex nail must be 18mm min. Refer to Figure 4.
Axon面板通过鱼鳞板搭接方式连接，面板之间保持1-2mm的缝隙。当应用直接安装法时，用一段50mm宽的3259 Inseal密封胶带覆盖在接缝下面的木制墙筋表面。在面板被连接之前，必须在整个搭接端涂上软性密封胶。HardieFlex钉子之间的边缘间距必须不小于18mm。参见图4.

Cavity construction 空心结构法

Fix the CLD Structural Cavity Batten over the studs and it runs behind the entire length of the shiplap joint with a 50mm overhang below the bottom plate and finishes flush with the bottom edge of panel. Refer to Figures 16 and 17. The vertical shiplap joint is formed along the centre line of the batten. A bead of sealant is applied to the vertical edge of the Axon Panel to seal the shiplap joint before fixing the panels. Refer to Figure 19. The edge distance for a brad nail must be 16mm and 18mm. Refer Figures 14 and 19.

将CLD空心结构板条固定在墙筋上，确保其贯穿面板搭接缝隙的整个长度，并悬空于下托板的下方50mm处，且板条末端与面板的下缘齐平。参见图16和17. 纵向鱼鳞搭接缝应位于板条的中线上。在固定面板之前，在Axon面板的纵边上涂上一条密封胶，以密封搭接缝。参见图19。平头钉之间的边缘距离必须为16mm或18mm。参见图14和19。

7.3 HORIZONTAL JOINT 水平连接

At floor joist levels a horizontal joint must be provided to accommodate the movement resulting from timber joist shrinkage and settlement. A JH 9mm panel aluminium horizontal 'h' mould is used to form a horizontal joint. Use the aluminium 'h' mould jointer to cover over the butt joint of 'h' mould. A purpose made metal 'Z' flashing or a James Hardie uPVC flashing could also be used to flash the horizontal joint. Refer to Figures 11, 12 and 27.

在地板龙骨层，必须对面板进行水平连接，以适应木质龙骨用于收缩和变形所导致的移动。JH 9mm面板铝制水平h形覆膜可以用于形成一个水平连接。用铝制h形连接件覆盖在尾接的h形覆膜上。也可以用一种特殊制作的z形金属防水板或James Hardie uPVC防水板来达到对水平接缝进行防水的效果。参见图11、12和27。

7.4 EXTERNAL CORNER 阳角

A JH 9mm panel aluminium box corner mould is used to form the external box corner. The site-cut sheet edges must be sealed before butting them into the box corner. Refer to Figure 7.
可以用JH 9mm面板铝制箱角覆膜来形成阳角箱角。必须先对施工现场切割过的板材端口进行密封，再将其尾接到箱角里。参见图7。

Do not run the box corner flashing continuously over the floor joist. On a two storey construction the aluminium box corner is finished under the aluminium 'h' mould. A uPVC corner under flashing must be used under the box corner when in this situation. Refer to Figure 12.

不要在地板龙骨上连续不断地覆盖箱角防水板。对于两层的建筑来说，铝制箱角应结束于铝制h形覆膜之下。在这种情况下，必须在箱角下方使用uPVC下边角防水板。参见图12。

For CLD Structural Cavity Batten external corner refer to Figure 22.
关于CLD板条空心结构中的阳角，请参阅图22。

The bead of adhesive must be 10mm thick to accommodate for the thickness of the aluminium.
所涂的密封胶必须为10mm粗，以适应铝制配件的厚度。

7.5 INTERNAL CORNER 阴角

Direct fixed internal corner is formed using a uPVC corner under flashing or an 80mm wide Inseal sealing strip behind the panel edges. The joint is filled with the flexible sealant. Refer to Figure 6.
直接安装法中的阴角可以通过使用uPVC边角下防水板或者在面板边缘的后方使用80mm宽的Inseal密封条来实现。连接处需用软性密封胶填充。参见图6。

For CLD Structural Cavity Batten internal corner joint detail refer to Figure 21.
关于CLD板条空心结构中阴角的连接，请参见图21。

7.6 FLASHING MATERIAL DURABILITY 防水材料的耐久性

Please refer to Table 20 of E2/AS1 of the NZBC regarding the durability requirements of various flashing materials.

请参阅NZBC中E2/AS1的表20，知悉关于不同防水材料的耐久性要求。

8 Finishing 表面处理

8.1 PREPARATION 准备工作

Painting of Axon Panel is mandatory to meet the durability requirements of the NZBC and 15 year James Hardie product warranties. Axon Panel must be dry and free of any dust or grime before painting. The panels must be painted within 90 days of their installation. There is no restriction on the LRV of paint to be applied on the Axon Panel.
为了符合NZBC关于耐久性的要求和James Hardie15年质保的要求，Axon面板必须上漆。在上漆前请保持板材干燥和清洁无污。上漆必须在安装后90天内完成。对于Axon面板所涂漆的LVR值没有要求。

When using uPVC flashings, dark colours should be avoided as it will affect the durability of uPVC flashing. The LRV of paint must be above 40% when using uPVC flashings.
当使用uPVC防水板时，应避免使用深色对面板上漆，因为它会影响uPVC防水板的耐久性。且当使用uPVC防水板时，油漆的LRV值应大于40%。

Dark paints can be used when using the aluminium flashings. Panels are pre-primed and are suitable for site applied acrylic paints. Pre-finished panels can also be installed using exposed head fasteners.
当使用铝制防水板时，可以使用深色的涂料上漆。Axon面板已经预涂底漆，并适用于在工地现场刷丙烯涂料。同时，也可以先对面板刷漆，然后再用暴露钉头的固件进行安装。

In order to seal cut edges or sanded patches, Dulux 1 Step, Resene quick dry, Taubmans Underproof Acrylic Primer Undercoat or a similar product should be applied. The primer should be compatible with the paint to be used.
为了密封板材的切割面和砂纸抛光面，应使用 Dulux 1 Step, Resene quick dry, Taubmans Underproof Acrylic Primer Undercoat或其它可与底漆相兼容的类似产品为板材上漆。所涂的涂料应当与面板已预涂的底漆相兼容。

Where panels are fixed with brad nails, the nail heads must be finished flush with panel surface. The nail gun should be set to nail “proud” of the panel surface and nail heads to be manually finished flush with surface. The nail heads can be skimmed over with an exterior grade 2 part builders fill if required. The skimmed area must be primed prior to site-applied finishing.
如果板材是用平头钉进行固定的，则钉头必须敲至与板面齐平。如果未做到，则应用射钉枪将凸出面板之上的钉子人工地固定为与板面齐平。如果需要，钉头可以用外用级别双剂式建筑用填充剂进行密封。密封的区域必须先预涂底漆，然后再涂外用涂料。

For site-applied finishes where brad nails are used. James Hardie recommends an undercoat and a minimum of two coats of acrylic paint. Follow the paint manufacturer’s recommendations to prepare the surface and to adequately cover and conceal the panel fixings.
对于使用了平头钉后的施工现场刷漆处理，James Hardie建议至少涂两层外用级别的聚丙烯涂料。请遵照油漆制造商的建议来预处理板材表面，并充分地隐藏固件／钉孔。

8.2 FLEXIBLE SEALANT 软性密封胶

All sealants used must comply with the relevant requirements of the NZBC. Their application and usage must be in accordance with manufacturer’s instructions. Check with sealant manufacturer prior to coating over sealants. Some sealant manufacturers do not recommend coating over their products.
任何密封胶的使用必须遵照NZBC的相关要求。密封胶的用法和用途必须符合制造商的规定。在密封胶上刷漆之前，请先与密封胶制造商确认。有些密封胶的制造商并不建议在其产品之上刷漆。

9 Maintenance 维护

The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

建筑物所处的地理位置和暴露程度决定了它所需要的维护方式及程度。作为指南，我们仅建议一些基本的维护措施，包括但不仅限于：

- Washing down exterior surfaces every 6-12 months*
  每6至12个月清洗外表面*。
- Re-applying of exterior protective finishes if necessary**
  需要时重新粉刷外墙保护涂层**。
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants that may provide a means of moisture entry beyond the exterior cladding.
  维护建筑的外表面和连接处，包括接缝、穿透、防水处和密封剂填充处等使得湿气有机会穿过外墙进入建筑体内的地方。
- Cleaning out gutters, blocked pipes and overflows as required
  按照要求清理排水沟、下水管和溢流的管道。
- Pruning back vegetation that is close to or touching the building
  修剪与建筑物直接接触的植物或建筑物附近的植物。

- The clearance between the bottom edge of Axon Panel and the finished ground must always be maintained.
  确保Axon面板的底边缘与已铺／未铺的地面保持适当的距离。

*Do not use a water blaster to wash down the cladding.

*请勿用水枪冲刷护墙板

*In extreme coastal conditions or sea spray zones, wash every 3-4 months.

*在极度沿海地区或涌潮区，每3-4个月清洗一次外表面

**Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.

** 有关油漆表面清洗及重新上漆的相关要求，请咨询您的油漆制造商。

10 Product information 产品资料

10.1 MANUFACTURING AND CLASSIFICATION 制造工艺与分类

Axon Panel is an advanced lightweight cement composite building product. The basic composition is portland cement, ground sand, cellulose fibre and water. The panels are easily identified by the name 'Axon Panel' printed at regular intervals on the back face of panel.
Axon面板是一种领先技术的低密度合成水泥建筑材料。它的基本配方是波兰水泥、地表沙、纤维素纤维和水。产品可直接由品名“Axon面板（Axon Panel）“ 辨认，该名称会以均匀的间距印刷在板材的背面。

CLD Structural Cavity Battens are manufactured using a low density fibre cement formulation. The basic composition is Portland cement, ground sand, cellulose fibre and water and proprietary additives. The battens are sealed on all sides.
CLD空心结构板条是用低密度纤维水泥配方制造的。它的基本成分为波兰水泥、地表沙、纤维素纤维、水及专用添加剂。这些板条在出厂前已经经过了全方位的密封。

Axon Panel is manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Panels') standards in New Zealand. James Hardie is an ISO 9001 'Telarc' certified manufacturer.
Axon面板的制造符合AS/NZS 2908.2 “纤维水泥产品” 标准（ISO 8336 ‘Fibre-Cement Flat Panels’）在新西兰的要求。James Hardie是一家经过ISO 9001 ‘Telarc’认证的制造商。

Axon Panel is classified Type A, Category 3 in accordance with AS/NZS 2908.2 "Cellulose-Cement Products".
根据AS/NZS 2908.2 “纤维水泥产品（AS/NZS 2908.2 ‘Cellulose-Cement Products’）的标准，Axon面板属于目录3中的A类产品。

For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.
查看产品安全单（SDS），请访问www.jameshardie.co.nz 或拨打0800 808 868咨询Ask James Hardie。

10.2 PRODUCT MASS 产品重量

Axon Panel is manufactured in 9.0mm thickness and has a mass of 12.1kg/m2 at EMC.
Axon面板的制造厚度为9.0mm，重量为每平米12.1kg（EMC值）。

Axon Panel cladding is defined as a Light Weight Wall Cladding (not exceeding 30kg/m2) as per NZS 3604.
根据NZS 3604，Axon面板属于轻质外墙材料——未超过每平米30kg。

10.3 DURABILITY 耐久性

10.3.1 General 概述

Axon Panel installed as per this technical specification will meet the durability requirements for claddings as required under clause 'B2-Durability' of the NZBC.
凡按照本技术规范进行安装与维护的Axon面板，均可达到NZBC 批准文件“B2 – 耐久性”部分中对于外墙耐久性的要求。

10.3.2 Resistance to moisture/rotting 防潮与防腐

Axon Panel has demonstrated resistance to permanent moisture induced deterioration (rotting) and has passed the following tests in accordance with AS/NZS 2908.2:
为了检测Axon面板是否能够抵抗长期潮湿所导致的恶化（腐烂），Axon面板成功通过了根据AS / NZS 2908.2规定所进行的下列测试：

- Heat Rain (Clause 6.5).
  热雨（第6.5条）
- Water Permeability (Clause 8.2.2).
  透水性（第8.2.2条）
- Warm Water (Clause 8.2.4).
  温水（第8.2.4条）
- Soak Dry (Clause 8.2.5).
  浸泡后风干（第8.2.5条）

10.3.3 Control of External Fire Spread 外部阻燃性

Axon Panel is assessed as per Appendix C C7.1.1 and is classified as 'Non-Combustible Material' which is suitable for use as external wall cladding and complies with requirements of Paragraph 5.4 of the NZBC Acceptable Solution C/AS1 and Paragraph 5.8.1 of Acceptable Soluations C/AS2 to C/AS6 of the NZBC.
Axon面板符合附录 C C7.1.1的要求，被分类为“不易燃材料”，适合作为建筑物外墙使用，且符合NZBC合格方案C/AS1部分5.4段落的要求，以及NZBC合格方案C/AS2部分5.4段落至 C/AS6部分的要求。

10.3.4 Alpine regions 高寒地区

In regions subject to freeze/thaw conditions, Axon Panel must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions must be protected where snow drifts over winter are expected.
对于经常出现冰冻/融化状况的地区，Axon面板不得长时间直接接触积雪或冰块。例如:在冬天可能出现吹雪现象的高寒地区，外墙必须受到遮蔽保护。

The Axon Panel has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.
经检测，Axon面板符合AS/NZS 2908.2中8.2.3部分的要求。

11 Safe working practices
安全施工守则

WARNING - DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA
警告 - 切勿吸入粉尘，请仅在通风良好的环境下进行切割

James Hardie products contain sand, a source of respirable crystalline silica.
May cause cancer if dust from product is inhaled.
Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product.
James Hardie的产品中含有沙子，是可吸入结晶二氧化硅的来源。如吸入产品中的粉尘，可能会导致癌症，长期反复吸入产品中的粉尘，会对肺及呼吸系统造成损害。

Intact fibre cement products are not expected to result in any adverse toxic effects. The hazard associated with fibre cement arises from the respirable crystalline silica present in dust generated by activities such as cutting, rebating, drilling, routing, sawing, crushing, or otherwise abrading fibre cement, and when cleaning up, disposing of or moving dust.
完整的纤维水泥产品预期不会对人体造成有毒害的影响。与纤维水泥相关的有害物质是在切割，打磨，钻孔，铣削，锯切，压碎或其他方式研磨纤维水泥时，以及清理，处理或移动时产生的含有可吸入结晶二氧化硅的粉尘引起的。

When doing any of these activities in a manner that generates dust, follow James Hardie instructions and best practices to reduce or limit the release of dust.
在进行以上活动时，请遵循James Hardie的指导及安全施工守则，以降低及限制粉尘的散播。

If using a dust mask or respirator, use an AS/NZS 1716 P1 filter and refer to Australian/New Zealand Standard 1715:2009 Selection, Use and Maintenance of Respiratory Protective Equipment for more extensive guidance and more options for selecting respirators for workplaces. For further information, refer to our installation instructions and Safety Data Sheets available at www.jameshardie.co.nz.
如使用防尘面罩或呼吸器，请使用AS/NZS 1716 P1滤芯，并参见《澳大利亚/新西兰1715:2009标准 - 选择，使用和维护呼吸防护设备》的全面指导及其提供的更丰富的作业用呼吸器选择。欲知更多信息，请查看www.jameshardie.co.nz，参见我们的安装说明及安全数据表。

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.
未能遵守我们的警告，安全数据表和安装说明可能会导致严重的人身伤害或死亡。

Crystalline Silica is
结晶二氧化硅是

- Commonly known as sand or quartz.
  俗称沙子或石英。
- Found in many building products e.g. concrete, bricks, grout, wallboard, ceramic tiles, and all fibre cement materials.
  存在于众多建筑产品中，例如混凝土，砖，水泥浆，墙板，瓷砖和所有纤维水泥材料。

Why is Crystalline Silica a health hazard?
为什么结晶二氧化硅会危害健康?

- Silica can be breathed deep into the lungs when present in the air as a very fine (respirable) dust.
  二氧化硅以极细（可呼吸）的粉尘形式存在于空气中时，可深吸到肺部。
- Exposure to silica dust without taking the appropriate safety measures to minimise the amount being breathed in, can lead to a potentially fatal lung disease – silicosis – and has also been linked with other diseases including cancer. Some studies suggest that smoking may increase these risks.
  接触二氧化硅粉尘而未采取适当的安全措施以最大程度地减少吸入量，可能会导致致命的肺部疾病–矽肺病，并且还与包括癌症在内的其他疾病有关。一些研究表明，吸烟可能会增加这些风险。
- The most hazardous dust is the dust you cannot see!
  危害最大的粉尘是你看不见的粉尘!

When is Crystalline Silica a health hazard?
结晶二氧化硅在何种情况下会危害健康?

- It's dangerous to health if safety protocols to control dust are not followed when cutting, drilling or rebating a product containing crystalline silica and when cleaning up.
  在切割，钻孔，打磨或清理含有结晶二氧化硅的产品时，如不遵守控制粉尘的安全守则，会危害健康。
- Products containing silica are harmless if intact (e.g. an un-cut sheet of wall board) .
  含硅的产品在完整的情况下是无害的（比如，未切割的墙板）。

Avoid breathing in crystalline silica dust.
避免吸入结晶二氧化硅粉尘。

Safe working practices
安全施工守则

- ✕ NEVER use a power saw indoors or in a poorly ventilated area.
  切勿在室内或通风不佳的区域使用电锯。
- ✕ NEVER dry sweep.
  切勿干扫。
- ✓ ALWAYS use M Class or higher vacuum or damp down dust before sweeping up.
  始终使用M级或更高级别的吸尘器，或在清扫之前沾湿粉尘。
- ✕ NEVER use grinders.
  切勿使用研磨机。

✓ ALWAYS use a dust reducing circular saw equipped with a sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the HardieBlade™ logo or one with at least equivalent performance – connected to an M Class or higher vacuum.
始终使用降尘圆锯，圆锯装有专为切割纤维水泥设计的可减少粉尘产生的锯片－最好是带有HardieBlade™商标的锯片或者至少具有同等功能－并与M级或更高级别的吸尘器相连接。

✓ Before cutting warn others in the area to avoid dust.
在切割之前，警示他人离开周围区域。

✓ ALWAYS follow tool manufacturers' safety recommendations.
始终遵循工具生产商的安全建议。

✓ ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut.
根据需要切割的纤维水泥板的厚度，始终仅露出所需最小的刀片深度。

✓ ALWAYS wear a properly-fitted, approved dust mask or respirator P1 or higher in accordance with applicable government regulations and manufacturer instructions.
始终根据适用的政府法规和制造商指导佩戴合适的、经过批准的P1或更高级别的防尘面罩或呼吸器。

✓ Consider rotating personnel across cutting tasks to further limit respirable silica exposures.
考虑轮换人员进行切割，进一步限制对可吸入二氧化硅的接触。

When cutting Axon Panel:
在切割 Axon 面板时：

✓ Work outdoors only.
仅在户外作业。

✓ Make sure you work in a well ventilated area.
确保你的作业环境通风良好。

✓ Position cutting station so wind will blow dust away from yourself and others in the working area.
妥善放置切割工作台，便于风将粉尘吹离你和在工作区域内的其他人。

✓ Rotate employees across cutting task over duration of shift.
安排工作人员轮值进行切割任务。

✓ Cut products with a HardieBlade Saw Blade (or equivalent) and a dust reducing circular saw connected to a M Class or higher vacuum.
使用HardieBlade锯片（或具有同等功能的锯片）切割产品，采用降尘圆锯连接M级或更高级别的吸尘器。

✓ When sawing, sanding, rebating, drilling or machining fibre cement products, always:
在锯切，砂磨，打磨，钻孔或加工纤维水泥产品时，请始终：

- Wear your P1 or higher (correctly fitted in accordance with manufacturers' instructions), ask others to do the same.
佩戴P1或更高级别的防护面罩或呼吸器（根据制造商指导正确佩戴），并要求他人也这样做 。

- Keep persons on site at least 2 metres and as far as practicable away from the cutting station while the saw is in operation.
让施工现场的人在锯切过程中尽可能远离切割工作台或至少保持2米距离。

- If you are not clean shaven, then use a powered air respirator with a loose fitting head top.
如果您留有胡子，请佩戴带有宽松头戴式面罩的电动送风呼吸器。

- Wear safety glasses.
佩戴安全镜。

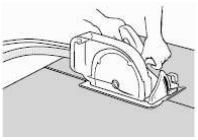
- Wear hearing protection.
佩戴护耳器。

- When others are close by, ask them to do the same.
如有他人在旁，要求他们也这样做。

✓ Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class or higher vacuum.
确保清洁，但切勿干扫。始终用水管冲洗或用湿抹布清洁，又或使用M级或更高级别的吸尘器。

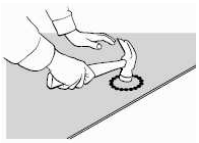
Working Instructions 作业说明

HardieBlade™ Saw Blade
HardieBlade™ 锯片



The HardieBlade Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust collector connected to a M Class or higher vacuum. When sawing, clamp a straight edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.
HardieBlade锯片与降尘圆锯一起使用，可以快速干净的切割James Hardie纤维水泥产品。降尘圆锯配有粉尘收集器，可与M级或更高级别的吸尘器连接。锯切时，请将直线边缘夹在板上作为导向，并让锯齿底部板沿直线进行切割。

Hole forming 成孔
For smooth clean cut circular holes:
形成平滑整齐的圆孔：



- Mark the centre of the hole on the sheet.
在板上标记孔的中心。
- Pre-drill a 'pilot' hole.
预钻一个孔。
- Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill.
在该预钻孔的基础上，使用配在重型电钻上的孔钻，钻出所需直径的孔。

For irregular holes:
不规则孔：

- Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face.
如需钻出小的长方形或圆形孔，可在周边钻一系列的小孔，然后从表面将多余部分敲打掉。
- Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported.
谨慎敲打，以防破坏板材，确保板材周边都有良好支撑。

11.1 STORAGE AND DELIVERY 储存和运送

Keeping products and people safe
保证产品和人员的安全

Off loading 卸载

✓ James Hardie products should be off-loaded carefully by hand or by forklift.
James Hardie产品须用手或叉车小心卸载。

✓ James Hardie products should not be rolled or dumped off a truck during the delivery to the jobsite.
James Hardie产品不应在运输至作业现场的过程中滚下或倾倒。

Storage 储存

James Hardie products should be stored:
James Hardie产品的储存一定要：

✓ In their original packaging.
储存至原包装。

✓ Under cover where possible or otherwise protected with a waterproof covering to keep products dry.
尽可能储存在有遮盖的地方或用防水层保护，保持产品干燥。

✓ Off the ground – either on a pallet or adequately supported on timber or other spacers.
不直接放在地面上——应放置在货板上或有充分支撑的木料和其他垫板上。

✓ Flat so as to minimise bending.
尽可能平放以减少弯曲。

James Hardie products must not be stored:
James Hardie产品的储存一定不要：

✗ Directly on the ground.
直接放置在地上。

✗ In the open air exposed to the elements.
暴露在空气中，接触到化学元素。

JAMES HARDIE IS NOT RESPONSIBLE FOR DAMAGE DUE TO IMPROPER STORAGE AND HANDLING.
如因储存或处理不当导致损坏，James Hardie 概不负责任。

11.2 TIPS FOR SAFE AND EASY HANDLING OF AXON PANEL 轻松安全处理AXON面板的小贴士

✓ Carry with two people.
两个人一起搬运。

✓ Hold near each end and on edge.
从两端和边缘处抬起。

✓ Exercise care when handling sheet products to avoid damaging the edges/corners.
对板材产品，须轻拿轻放，避免损坏边角处。

12 Product sizes and accessories
产品尺寸与配件

Table 7 **表7**

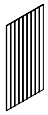
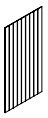
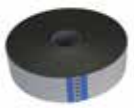
Axon Panel information Axon面板产品信息					
Product 产品	**Description** 描述	**Thickness** 厚度	**Size** 尺寸		**Product Code** 产品编号
			Length 长度	**Width** 宽度	
	**Axon Panel 133 Smooth** Is a shiplap jointed panel to hide the panel joints. The panel is face primed. The panel has grooves at 133mm centres. The panel must be installed vertically. Nom. Panel Mass: 12.1kg/m2 Axon面板 133 平滑款 是一种鱼鳞板搭接面板，因而可隐藏连接口。面板表面预涂了底漆。面板表面的纵向沟纹之间中心间隔为133mm。面板必须垂直安装。标准重量： 每平米12.1kg	9	2450	1200	403780
			2750	1200	403781
			3000	1200	403782
	**Axon Panel 133 Gr ained** Is a shiplap jointed panel to hide the panel joints. The panel is face primed. The panel has grooves at 133mm centres. The panel must be installed vertically. Nom. Panel Mass: 12.1kg/m2 Axon面板 133 纹理款 是一种鱼鳞板搭接面板，因而可隐藏连接口。面板表面预涂了底漆。面板表面的纵向沟纹之间中心间隔为133mm。面板必须垂直安装。标准重量： 每平米12.1kg	9	2450	1200	404510
			2750	1200	404511
			3000	1200	404512
	**Axon Panel 400 Smooth** Axon面板 400 平滑款 Is a shiplap jointed panel to hide the panel joints. The panel is face primed. The panel has grooves at 400mm centres. The panel must be installed vertically. Nom. Panel Mass: 12.1kg/m2 Axon面板 400 平滑款 是一种鱼鳞板搭接面板，因而可隐藏连接口。面板表面预涂了底漆。面板表面的纵向沟纹之间中心间隔为400mm。面板必须垂直安装。标准重量： 每平米12.1kg	9	2450	1200	404414
			2750	1200	404415
			3000	1200	404416

Table 8 **表8**

Accessories/tools supplied by James Hardie James Hardie有售的配件／工具

Note: The actual width of the panel is 1203mm. All dimensions and masses provided are approximate only and are subject to manufacturing tolerances.
注意： 面板的实际宽度为1203mm。此处提供的所有尺寸和重量仅为约数，且可能存在生产误差。

Accessories 配件	Description 描述	Quantity/Size (approx) 尺寸	Code 产品编号
	**CLD Structural Cavity Batten** 19mm thick fibre cement cavity batten installed over RAB Board or a flexible underlay. Axon Panels are fixed to the battens. CLD空心结构板条 19mm厚的纤维水泥空心结构板条，安装在RAB刚性密封板或弹性隔层之上。Axon面板将被固定在这些板条上。	19 x 70mm, 2450mm long长	**403870**
	**JH 9mm Panel Aluminium External Box Corner** A box corner mould to form the external joints. 9mm etch primed. JH 9mm面板铝制阳角箱角 一种阳角箱角覆膜，用于形成阳角连接。经过9mm预先蚀刻。	2450mm long 长 2750mm long 长 3000mm long 长 4000mm long 长	**304509** **304510** **305150** **305808**
	**JH 9mm Panel Aluminium Horizontal 'h' Mould** A horizontal flashing to flash the horizontal joints. 9mm etch primed. JH 9mm面板铝制水平h形覆膜 一种水平防水板，用于对水平连接缝进行防水。经过9mm预先蚀刻	3000mm long 长	**304508**
	**Aluminium 'h' Mould Jointer** A jointer to cover the butt joint of 'h' mould. 铝制h形覆膜连接件 一种用于遮盖h形覆膜的尾接端口的连接件	100mm long 长	**304512**
	**uPVC Corner Under Flashing** A 50 x 50mm corner under flashing for internal and external joints. uPVC 下边角防水板 一种50 x 50mm的下边角防水板，用于印角或阳角连接处。	3000mm long 长	**303745**
	**uPVC Vent Strip** Used to provide protection from vermin entering cavity space. uPVC排气带 用于防止害虫和鸟类进入的pvc模具	3000mm long 长	**302490**
	**Annular Threaded Nail** 25 x 2.5mm nail. 环纹螺丝钉 25 x 2.5mm的钉子	500gm	**300390**
	**INSEAL® 3259 Tape** Black 50mm tape to be used under the vertical shiplap joint. Black 80mm tape to be used at corners. INSEAL® 3259胶带 黑色50mm胶带，用于垂直鱼鳞板搭接的连接缝处。 黑色80mm胶带，用于转角处	50m roll 每卷	**300767** **300769**
	**CLD Batten Corner Flashing Aluminium** Used at internal corner sealant joints at floor joist level. CLD板条铝制转角防水板 用于地板龙骨层的阴角处涂过密封胶的接缝		**304652**
Tools 工具			
	**HardieBlade™ Saw Blade** Diamond tip 184mm diameter fibre cement circular saw blade. Spacers not included. HardieBladeTM 锯片 金刚石刀头的纤维水泥切割圆锯片。不含垫片	Each 每片	**300660**

NOTE: uPVC 'h' mould and jointer accessories are also available from James Hardie.

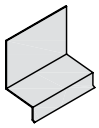
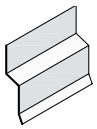
注意：uPVC h形覆膜和连接配件也在James Hardie有售。

Table 9 表9

Accessories/tools not supplied by James Hardie 不由James Hardie出售的配件／工具

James Hardie recommends the following products for use in conjunction with Axon Panel. James Hardie does not supply these products and does not provide a warranty for their use. Please contact component manufacturer for information on their warranties and further information on their products.

James Hardie推荐以下产品同Axon面板搭配使用。James Hardie不售卖这些产品，因而也不提供使用这些产品的任何质保。欲得到关于产品质保及更多详细信息，请联系相应的供应商。

Accessories 产品	**Description** 描述
	**Flexible Underlay** To comply with Table 23 of E2/AS1. 弹性隔层 必须根据E2/AS1中表23的要求进行安装。
	**Flexible Tape** A flexible self-adhesive tape used in preparation of a window. Refer to the Window installation section in this manual for more information. e.g. Tyvek®, Protecto or Thermakraft or similar. 弹性防水胶带 一种有弹力的粘性胶带，用于做安装窗户前的准备工作。请参阅本手册关于窗户安装的章节获取更多信息。如： Tyvek.、Protecto或Thermakraft，或者同类产品。
	**Joint Sealant** Paintable flexible sealants are recommended for filling the joints. Refer to Section 7.2 for information. e.g. Sika Silaflex MS, Sika AT Façade, Bostik Seal N Flex-1 or similar 接缝密封胶 推荐使用可以在其上涂漆的软性密封胶来填充连接缝。更多信息请参见本手册7.2部分。 如：Sika Silaflex MS, Sika AT Fa.ade, Bostik Seal N Flex-1 或者同类产品
	**Head Flashing** Required over window heads to be supplied by window installer. Material must comply with Table 20 and 21 of E2/AS1. 窗楣防水板 必须在窗楣上安装，由窗户安装商提供。材质必须符合E2/AS1部分表20和表21的规定。
	**Flashing Material** as per Table 20, 'E2/AS1' 防水材料 根据E2/AS1中表20的规定
	**HardieFlex™ Hot Dip Galv and Stainless Steel 316 nails** For fixing panels direct to framing. 40 x 2.8mm HardieFlex™热浸镀锌钉或不锈钢316钉子 用于将面板直接固定在屋体框架上。 40 x 2.8mm
	**C-25 Stainless Steel Brad Nails** 304SS brad nails used to install Axon Panels to the CLD Structural Cavity Battens used in a straight bradder. Paslode: (09) 477 3000 C-25不锈钢平头钉 304SS平头钉，用于将Axon面板固定在CLD空心结构板条上。 Paslode: (09) 477 3000

	**ND 50 Stainless Steel Brad Nails** Used to install Axon Panel direct fix to timber framing. Used in a straight bradder. ND 50不锈钢平头钉 用于将Axon面板固定在木质空心结构板条上。
	**65 x 2.87mm RounDrive Ring Shank Nail** For fixing CLD Structural Cavity Battens to the framing. Paslode: (09) 477 3000 65 x 2.87mm RounDrive环纹螺丝钉 用于将CLD空心结构板条固定在物体框架上 Paslode: (09) 477 3000
	**Bostik Seal N Flex-1** 'Seal N Flex-1' Polyurethane adhesive sealant manufactured by BOSTIK for applying between the panels and battens, Refer to section 5 for more information. BOSTIK: ALK: (09) 579 6253, WGTN: (04) 567 5119, CHCH: (03) 366 2583. Bostik Seal N Flex-1 由BOSTIK生产的'Seal N Flex-1'聚氨酯粘性密封胶，用于面板和结构板条之间。更多信息参阅本手册第5部分。
	**Sika Sikaflex 11FC** Sika: 0800 SIKA NZ (0800 745 269)
	**200mm wide Polypropylene DPC** Product used over flexible underlay at external and internal corners. ie. Super Course 500 200mm宽的聚丙烯胶带 用于阳角或阴角处的弹性隔层之上。即：Super Course 500

13 Details 详图

The following generic details have been provided in this document for both direct fixed and cavity construction methods.
本文档中的以下通用详图是同时为直接安装法和空心结构建筑法提供的。

Table 10 **表10**

Details 详图

Description 描述	**Direct Fixed** 直接安装法		**CLD Structural Cavity Batten Construction** CLD板条空心结构法	
	Figure No. 图号	**Page No.** 页码	**Figure No.** 图号	**Page No.** 页码
Typical framing setout 标准框架布局图	Figure 1 图1	16	Figure 15 图15	25
Typical panel nail fixing setout 面板入钉标准布局图	Figure 2 图2	17	Figure 17 图17	27
	Figure 13 图13	24		
Foundation detail 地基详图	Figure 3 图3	18	Figure 18 图18	28
Vertical shiplap joint 垂直鱼鳞板搭接详图	Figure 4 图4	18	Figure 19 图19	29
	Figure 14 图14	25		
Soffit detail 拱腹详图	Figure 5 图5	19	Figure 32 图32	39
Internal corner detail 阴角详图	Figure 6 图6	19	Figure 21 图21	30
External corner detail 阳角详图	Figure 7 图7	20	Figure 22 图22	31
Section at sill 窗台部分	Figure 8 图8	20	Figure 24 图24	33
Window jamb 窗框	Figure 9 图9	21	Figure 25 图25	34
Window head 窗楣	Figure 10 图10	21	Figure 26 图26	34
Window head with facings 带有饰面的窗楣			Figure 27 图27	35
Window jamb with facings 带有饰面的窗框			Figure 28 图28	35
Window sill with planted sill 种有绿植的窗台			Figure 29 图29	36
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Figure 1: Direct fixed typical framing setout
图1: 直接安装法标准框架布局图

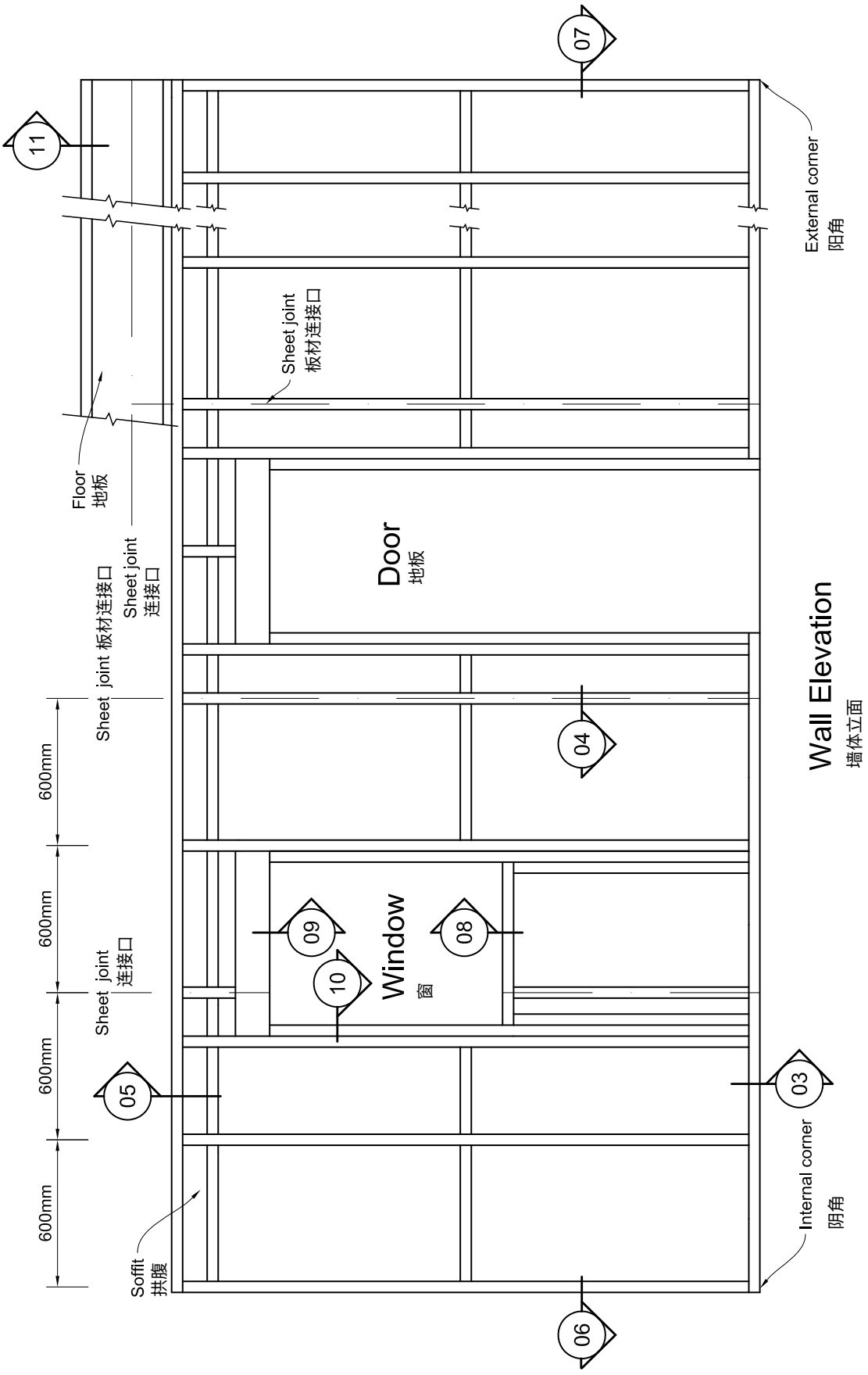
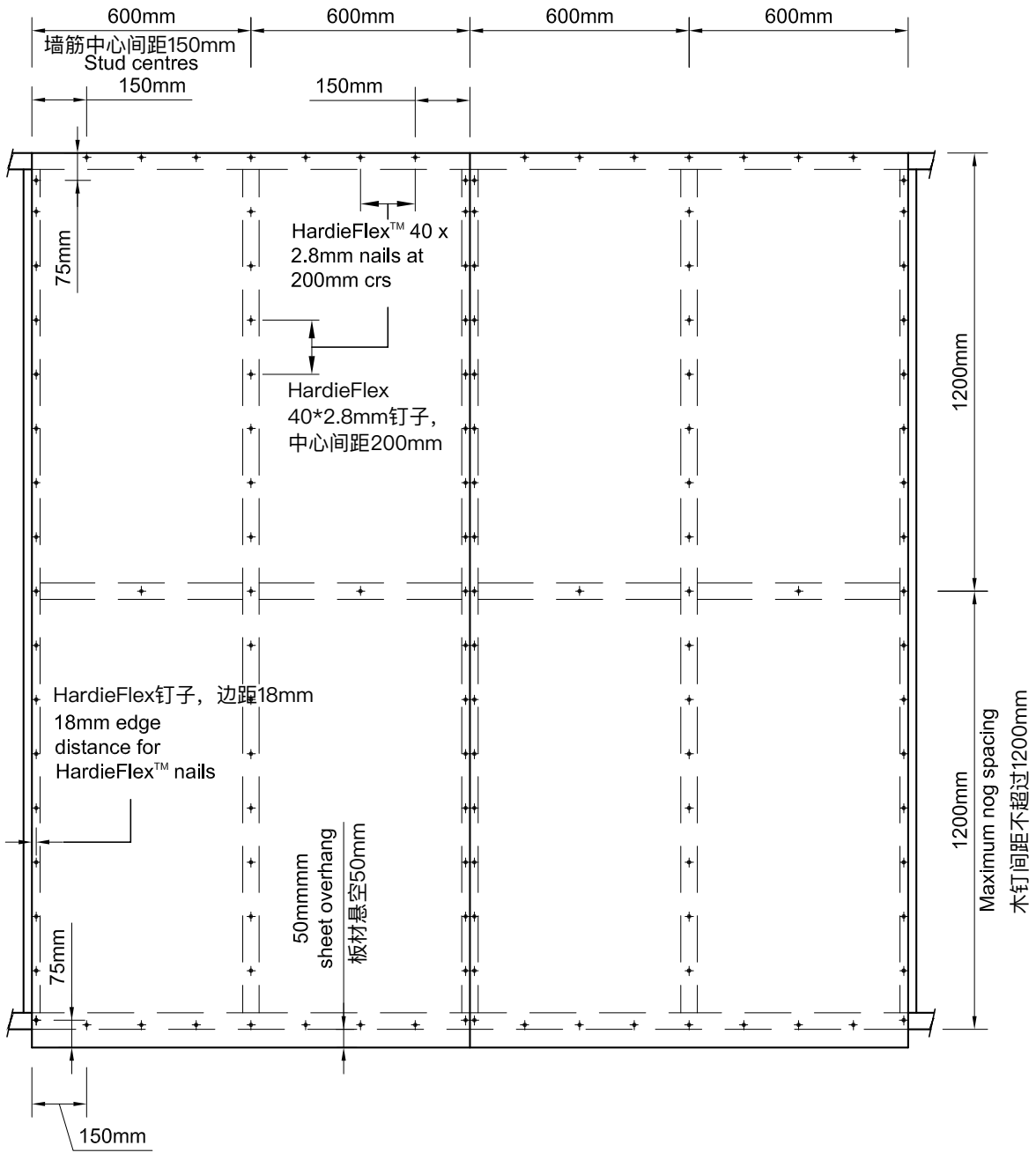


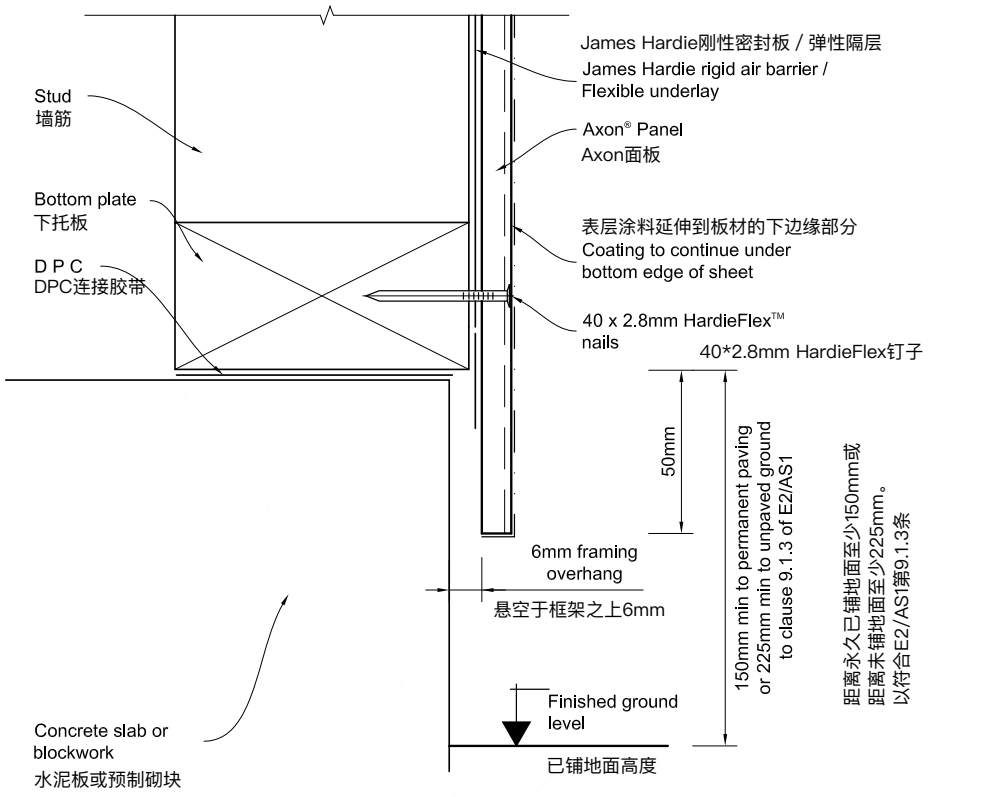
Figure 2: Direct fixed typical panel HardieFlex nail fixing setout
图2: 直接安装法HardieFlex钉子面板入钉标准布局图



Note: When studs spaced at 400mm centres using Axon® Panel 400, the nail fixings to intermediate studs to be offset 5mm from the groove in Panel.

注意：当使用Axon面板400且墙筋中心间距为400mm时，将板材固定在居中墙筋上的入钉应避开板材上的凹纹5mm。

Figure 3: Direct fixed foundation detail
图3: 直接安装法地基详图



Note: Refer to Section 2.4 for further information
注意：更多信息请参阅第2.4部分

Figure 4: Vertical shiplap joint — HardieFlex nail
图4: 垂直鱼鳞板搭接详图——HardieFlex钉子

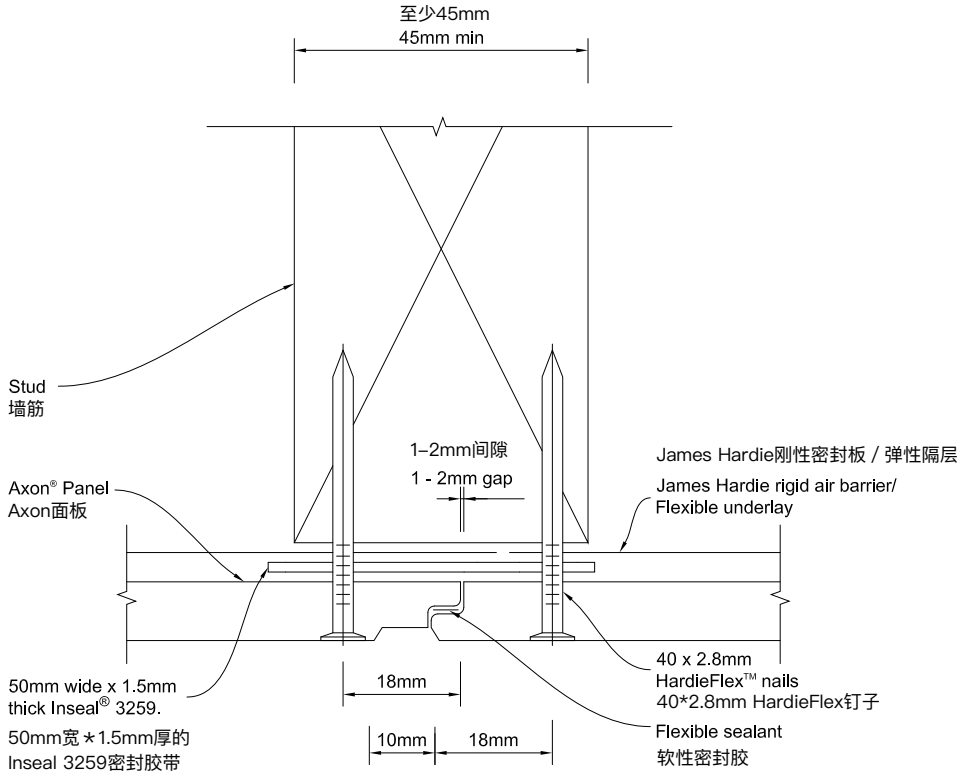


Figure 5: Soffit detail
图5: 拱腹详图

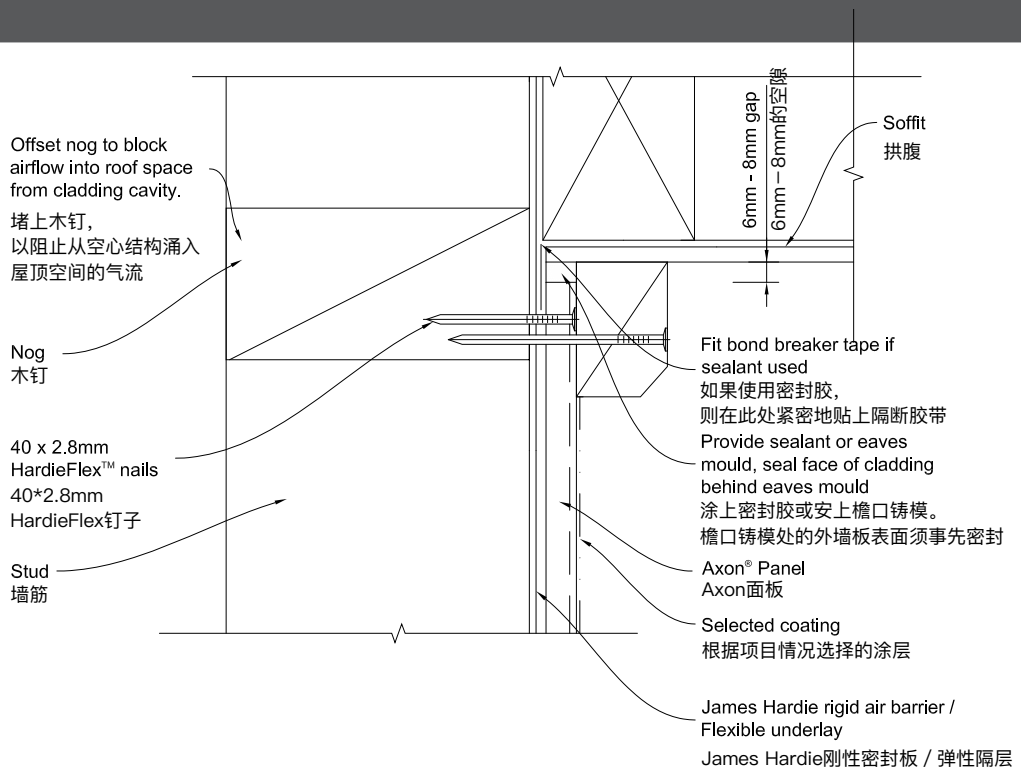


Figure 6: Internal corner detail
图6: 阴角详图

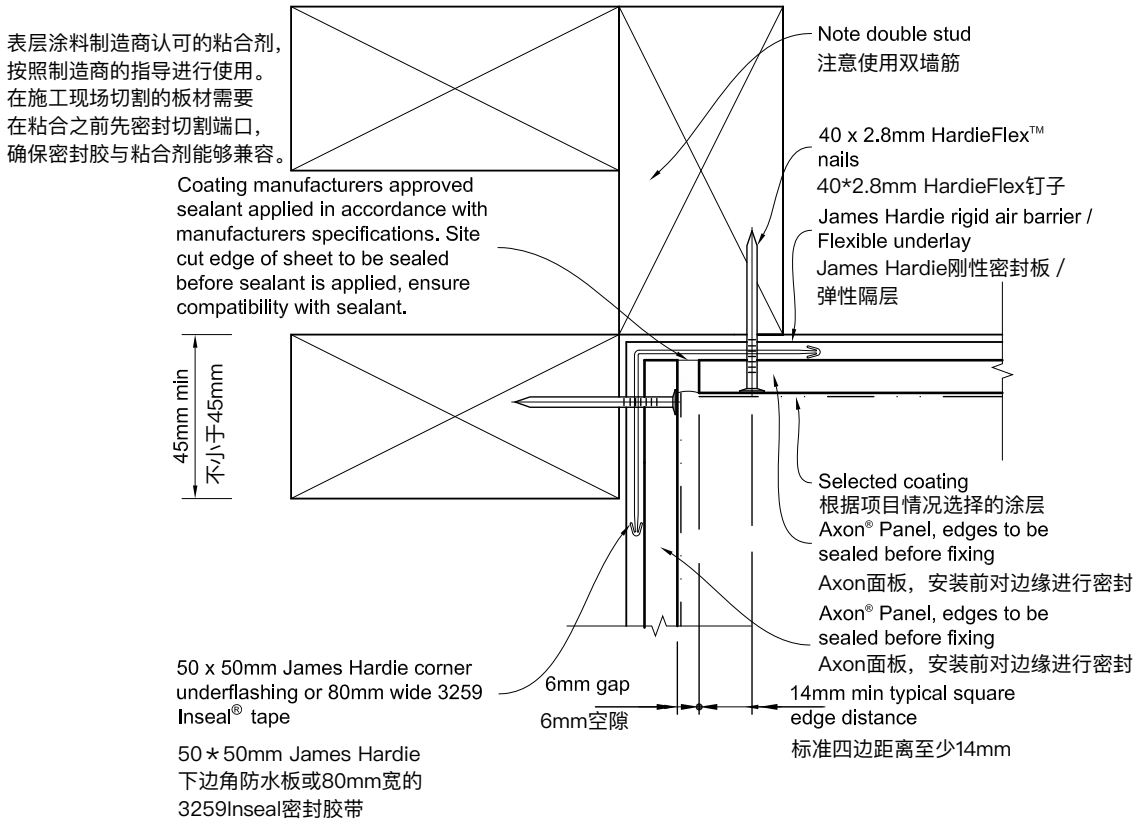


Figure 7: External corner detail
图7: 阳角详图

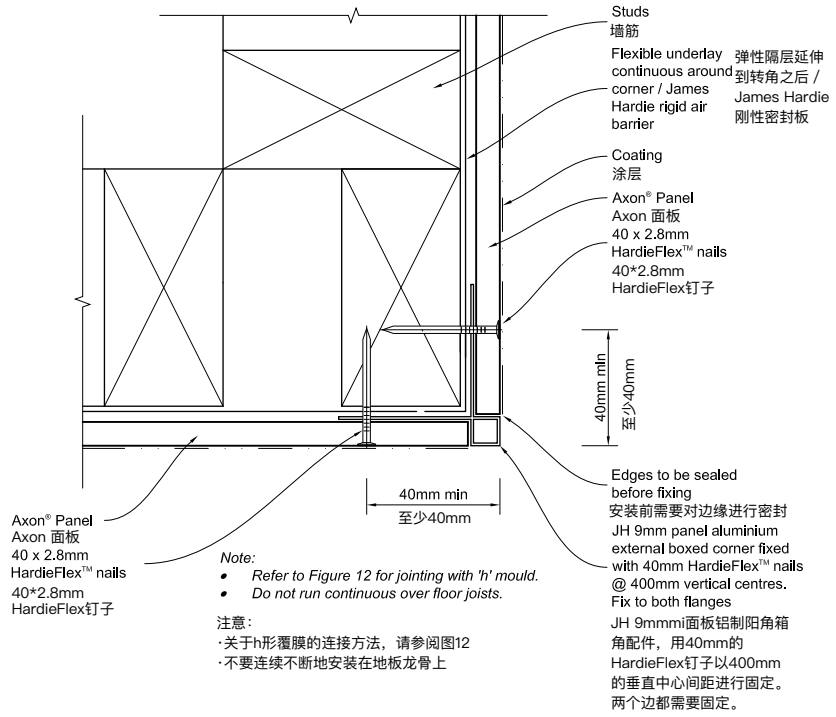
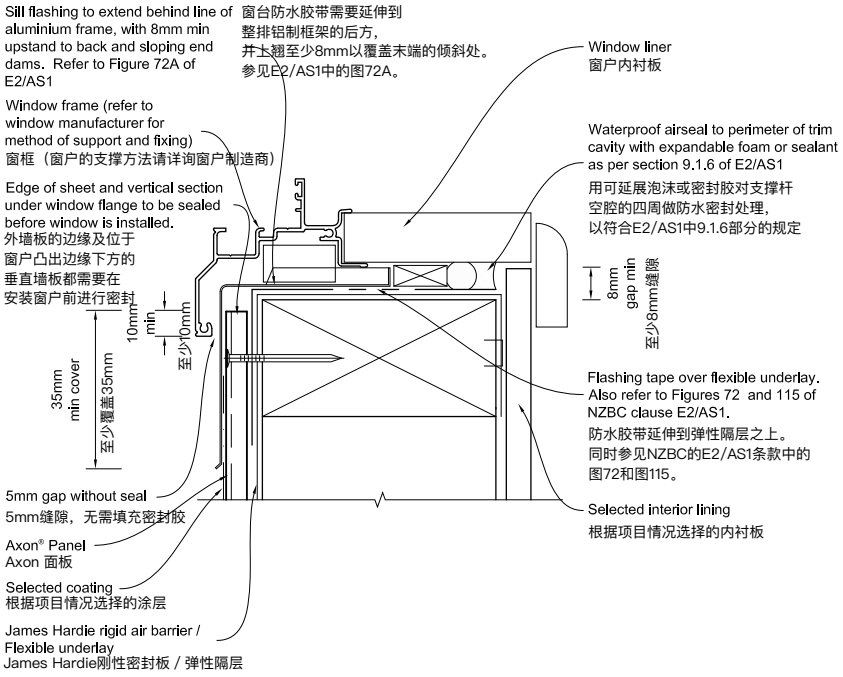


Figure 8: Section at sill
图8: 窗台部分



General notes for materials selection

1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
2. Flexible underlay must comply with acceptable solution E2/AS1.
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.

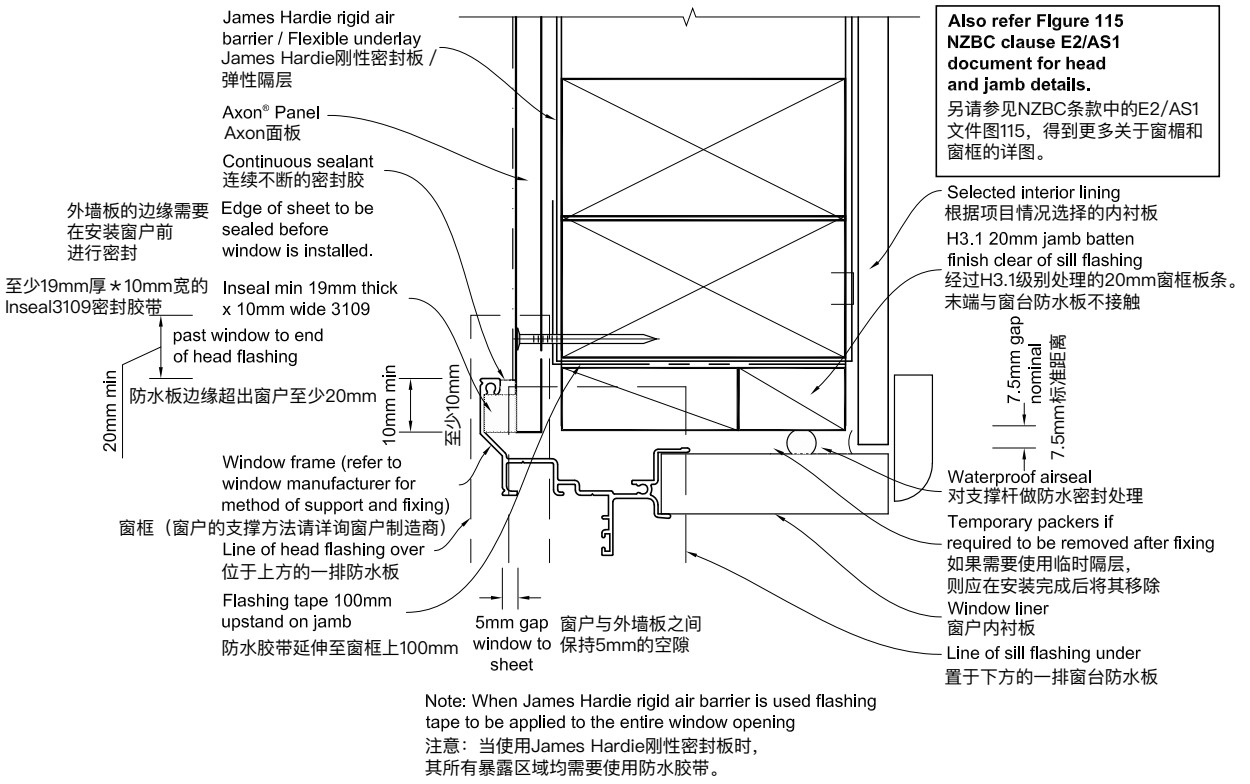
Refer to the manufacturer or supplier for technical information for these materials.

关于材料选择的常规提示

1. 防水材料必须基于所处的环境来选择，详情请参阅NZS3604和NZBC条款E2/AS1, 表20。
2. 弹性隔层必须符合合格方案条款E2/AS1的规定。
3. 防水胶带必须能够与所选用的弹性隔层 / James Hardie刚性隔板或其他与之直接接触的材料相互兼容。

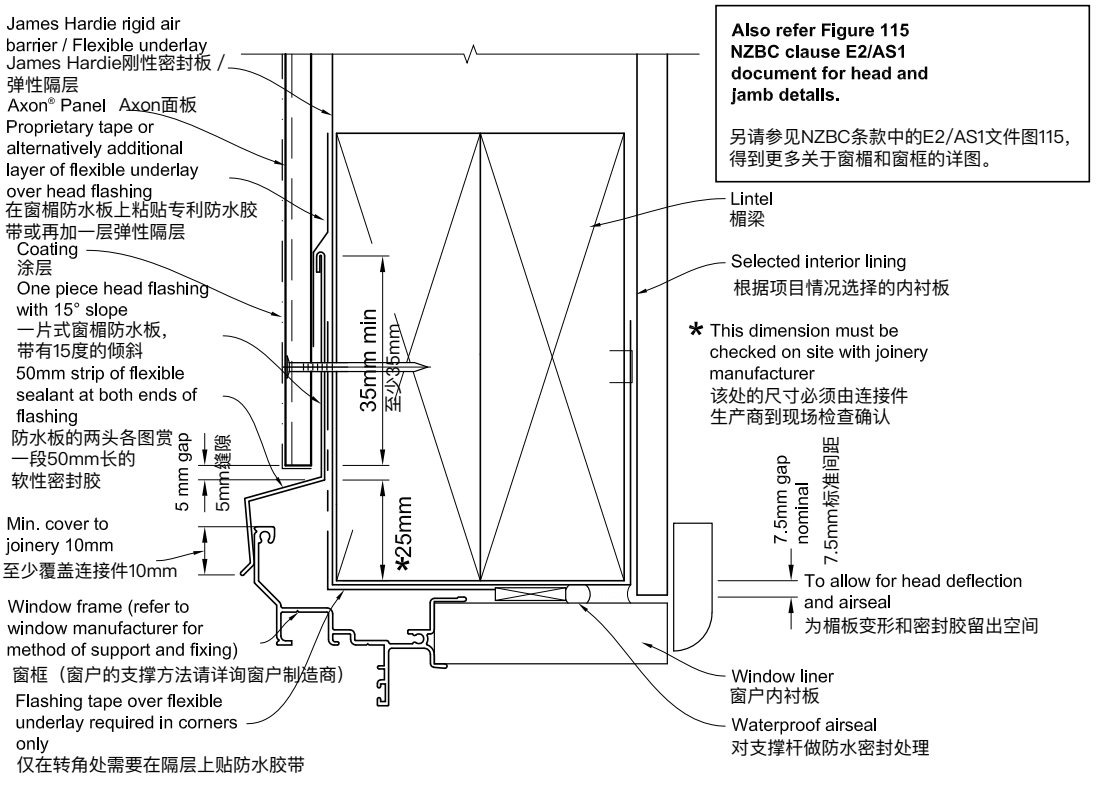
关于以上材料的技术信息，清参阅材料制造商或供应商所提供的资料。

Figure 9: Window jamb
图9: 窗框



Note: When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening
注意：当使用James Hardie刚性密封板时，其所有暴露区域均需要使用防水胶带。

Figure 10: Window head
图10: 窗楣



Note: When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening
注意：当使用James Hardie刚性密封板时，其所有暴露区域均需要使用防水胶带。

Figure 11: Horizontal joint detail
图11: 水平连接详图

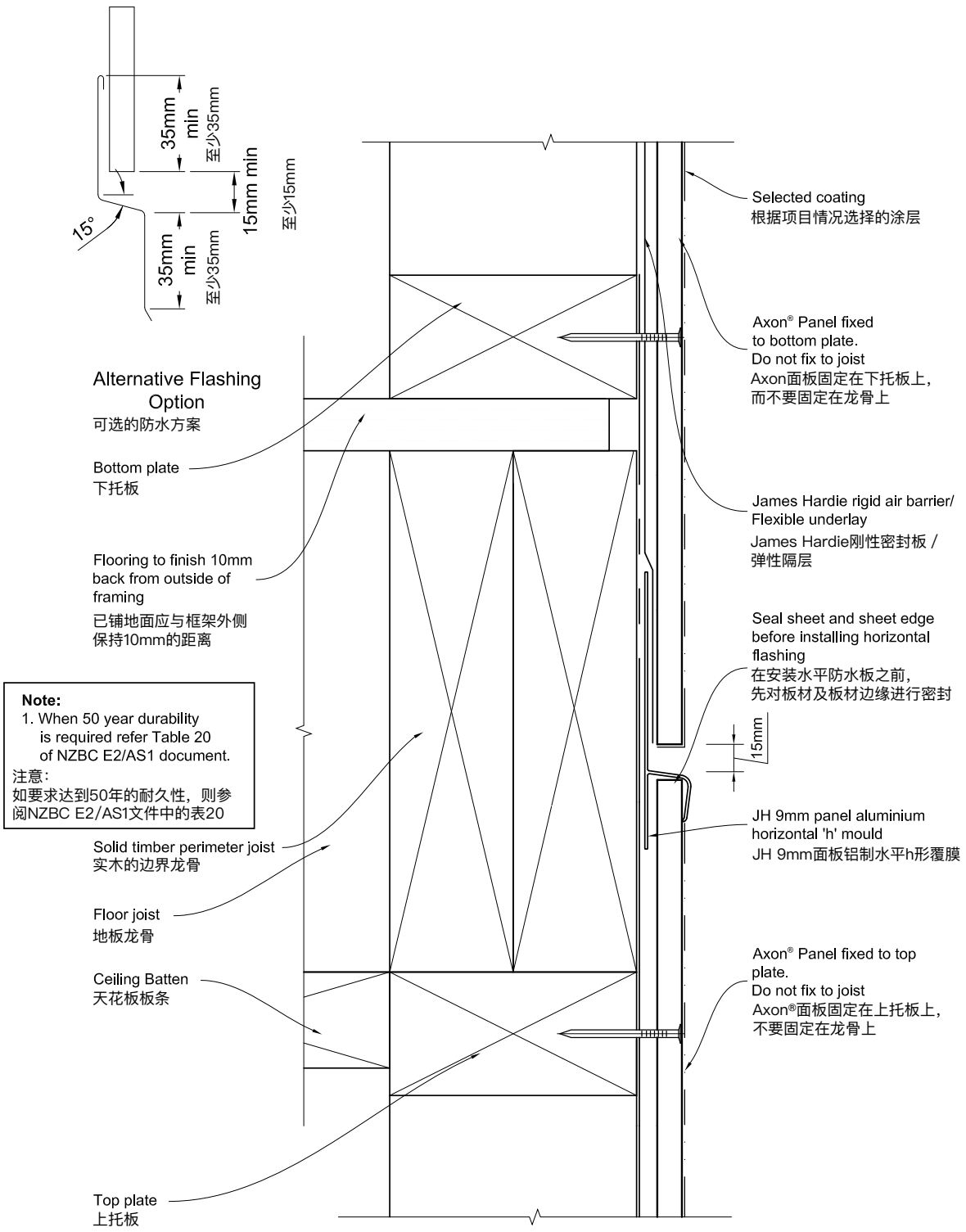


Figure 12: Corner at ‘h’ mould joint detail
图12: h形覆膜连接件处的转角详图

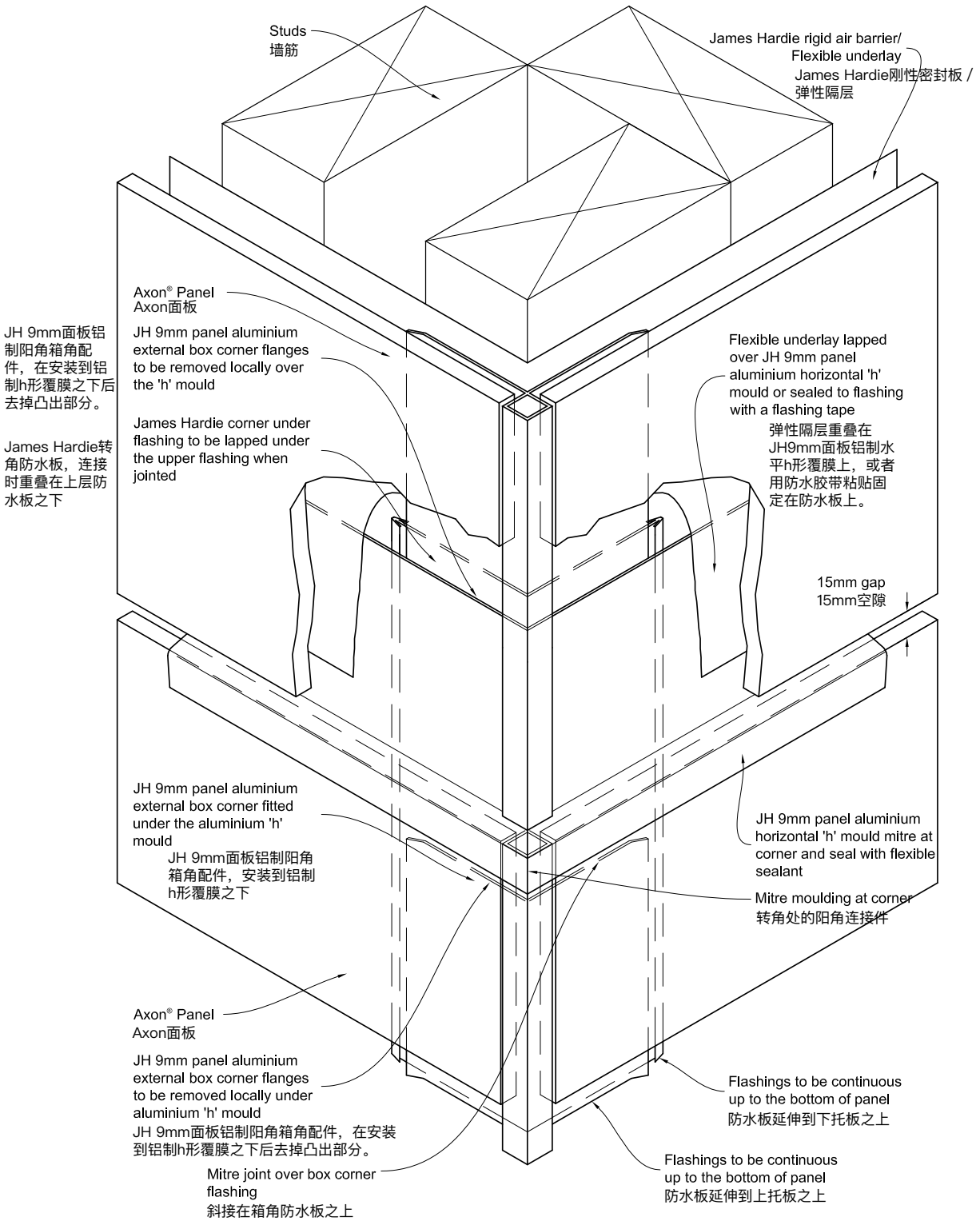


Figure 13: Direct fixed typical panel brad nail fixing setout
图13: 直接安装法平头钉面板入钉标准布局图

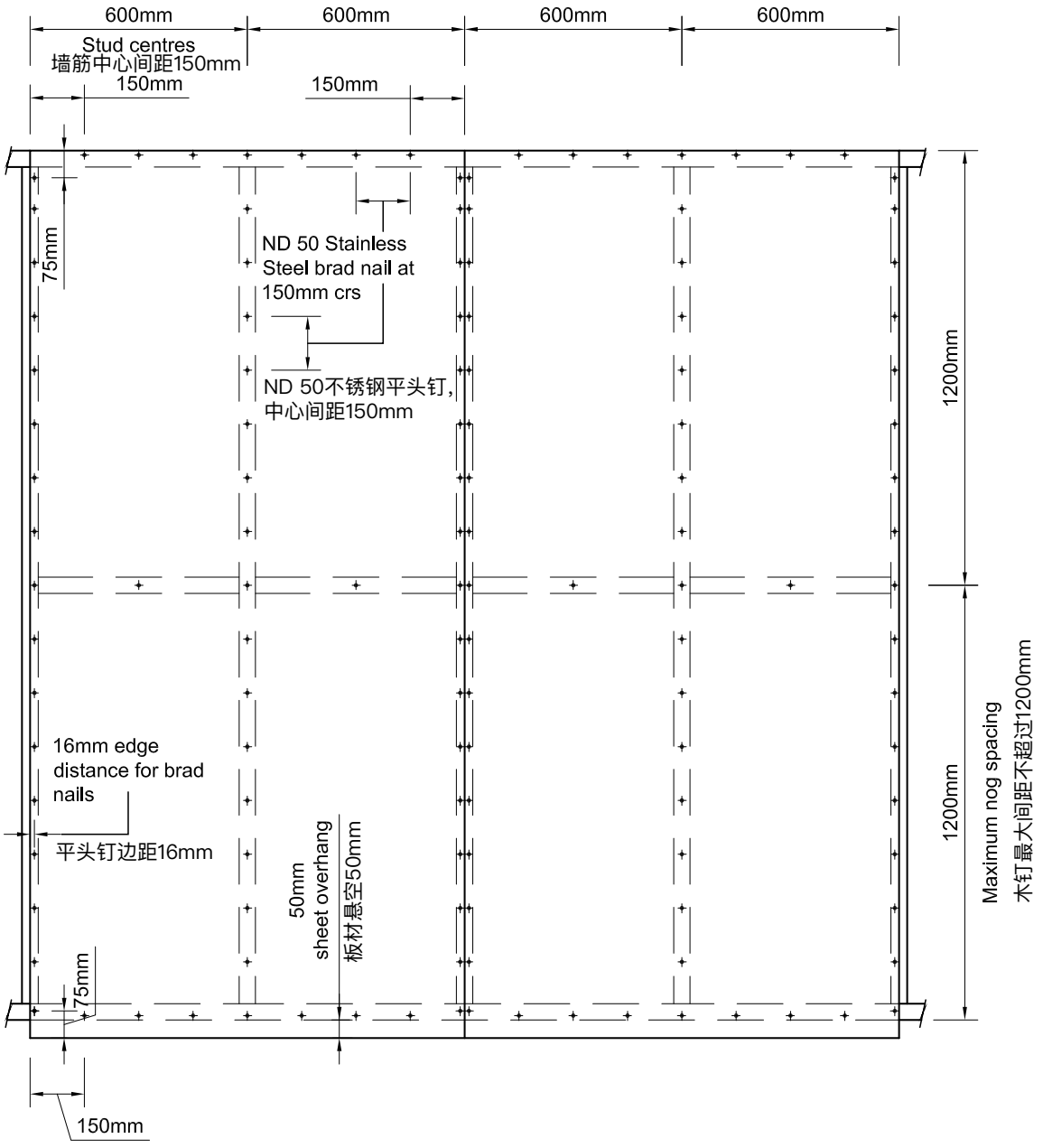


Figure 14: Shiplap joint — brad nail
图14: 鱼鳞板搭接——平头钉

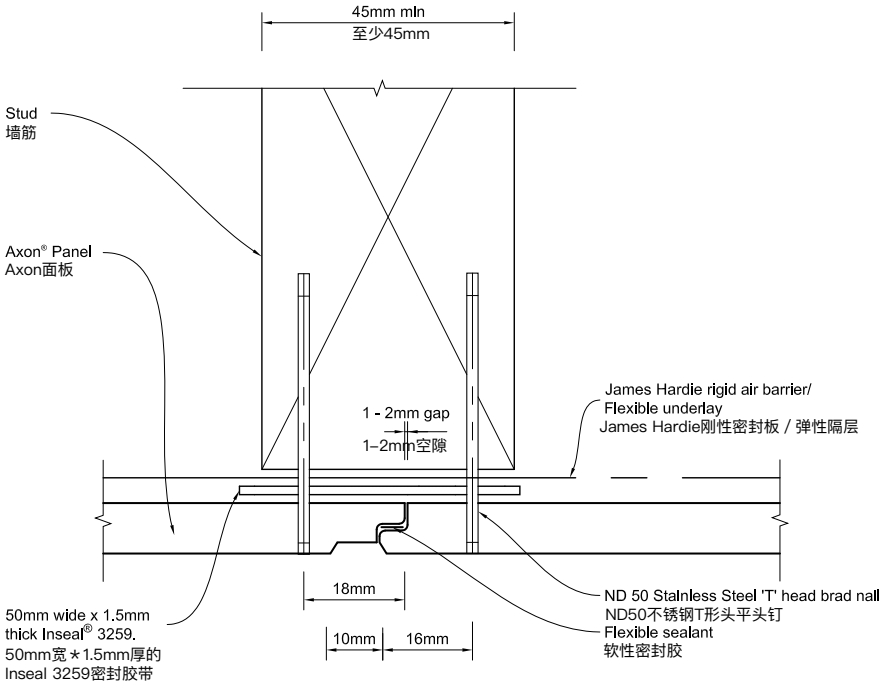


Figure 15: Framing setout
图15: 框架布局图

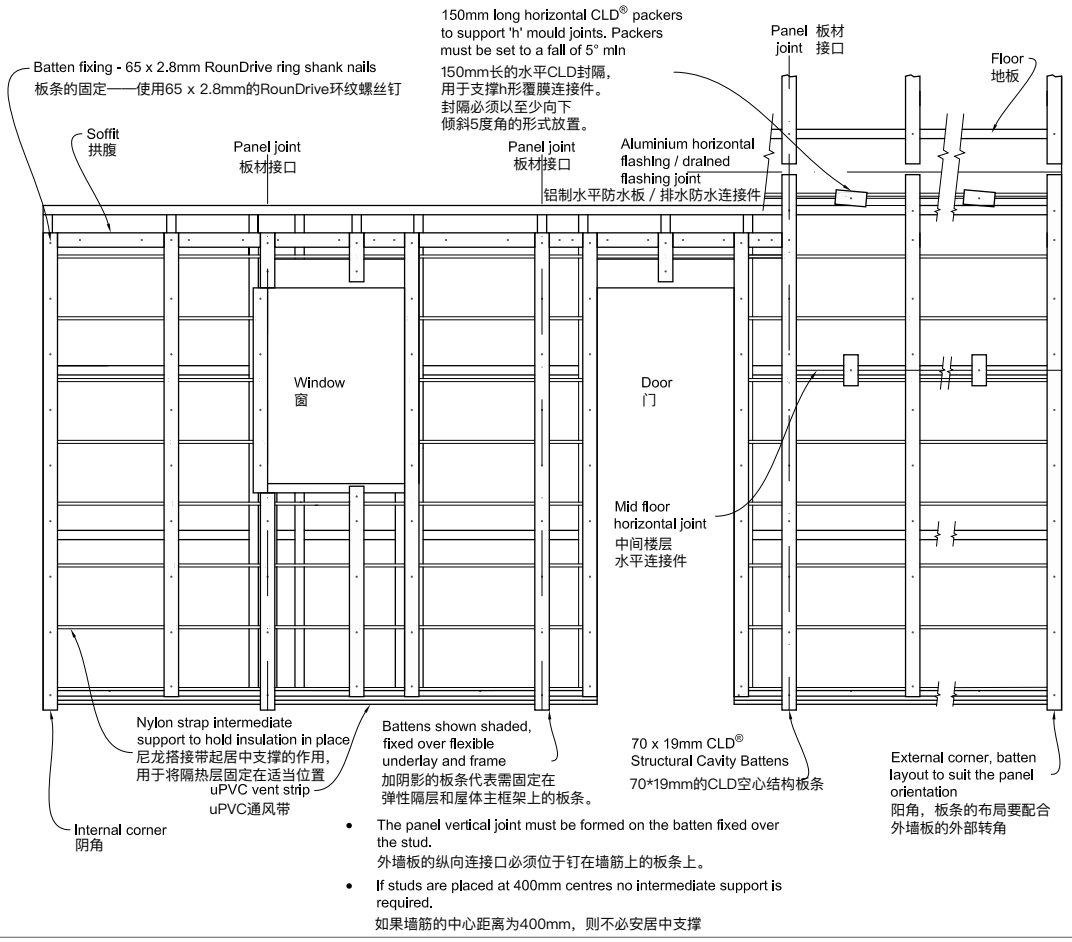


Figure 16: Batten fixing setout
图16: 框架布局图

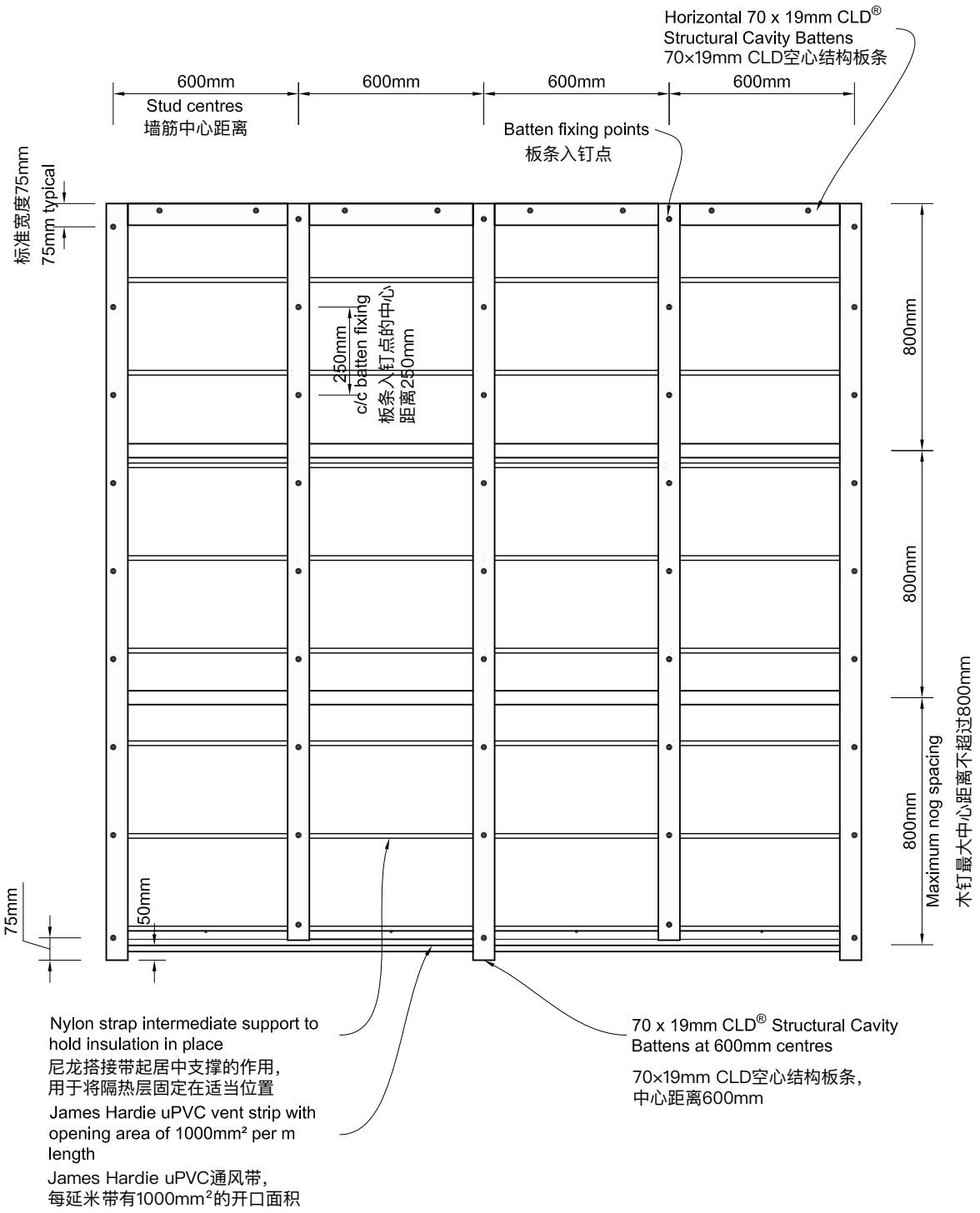
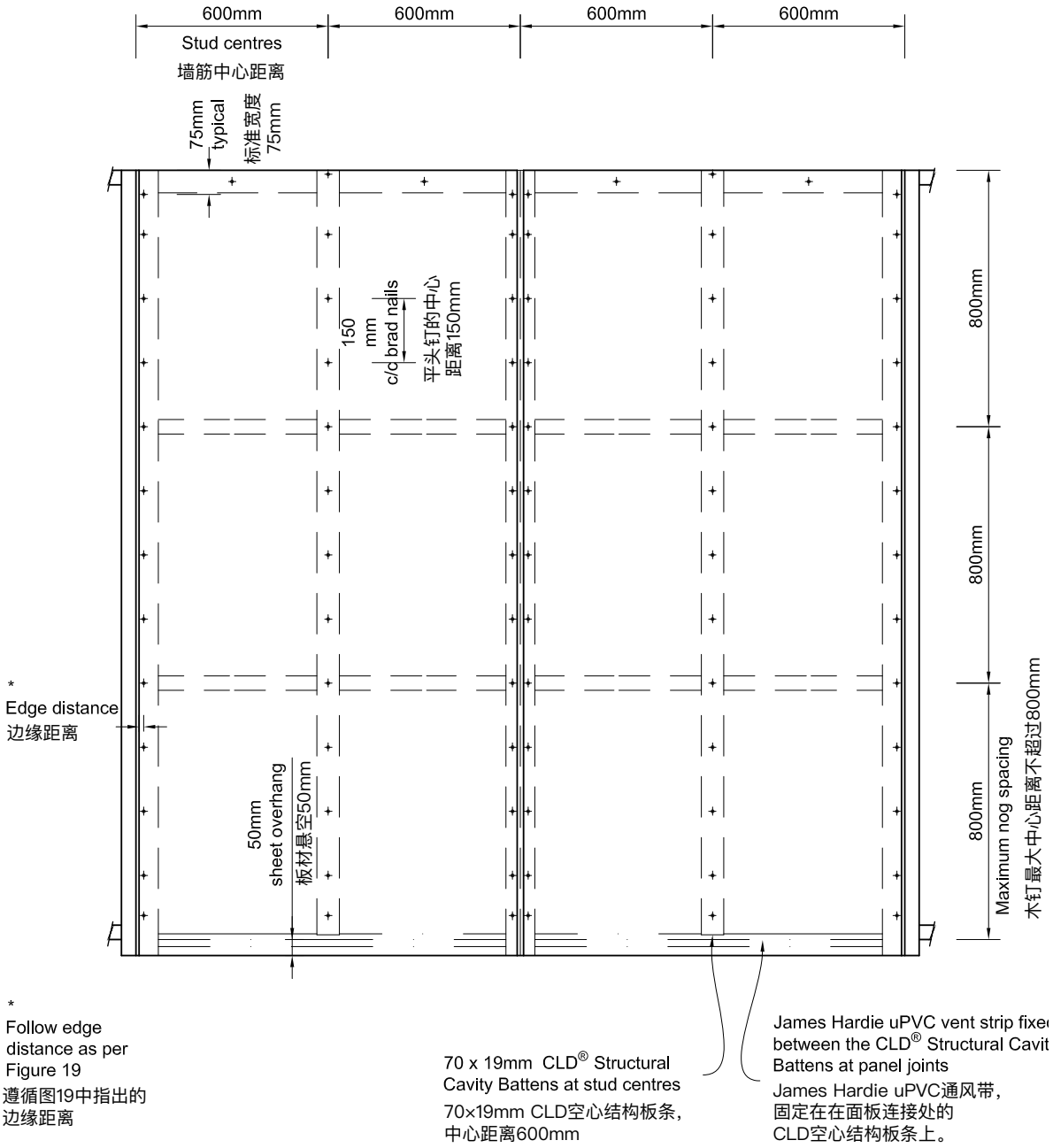


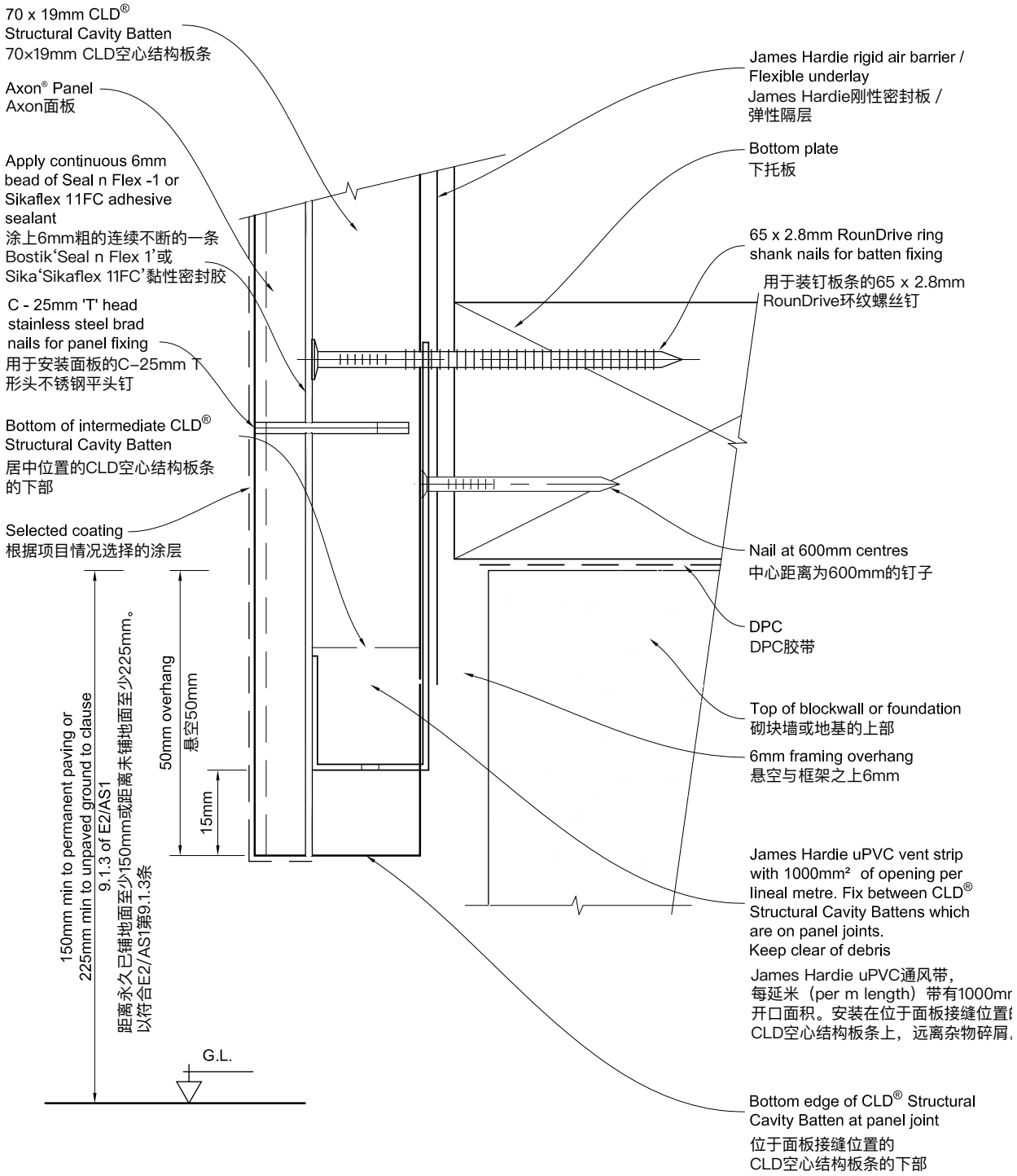
Figure 17: Sheet fixing setout
图17: 面板入钉布局图



Note: When studs spaced at 400mm centres using Axon® Panel 400, the nail fixings to intermediate studs to be offset 5mm from the groove in Panel.

注意：当使用Axon®面板400且墙筋中心间距为400mm时，将板材固定在居中墙筋上的入钉应避开板材上的凹纹5mm。

Figure 18: Foundation detail
图18: 地基详图



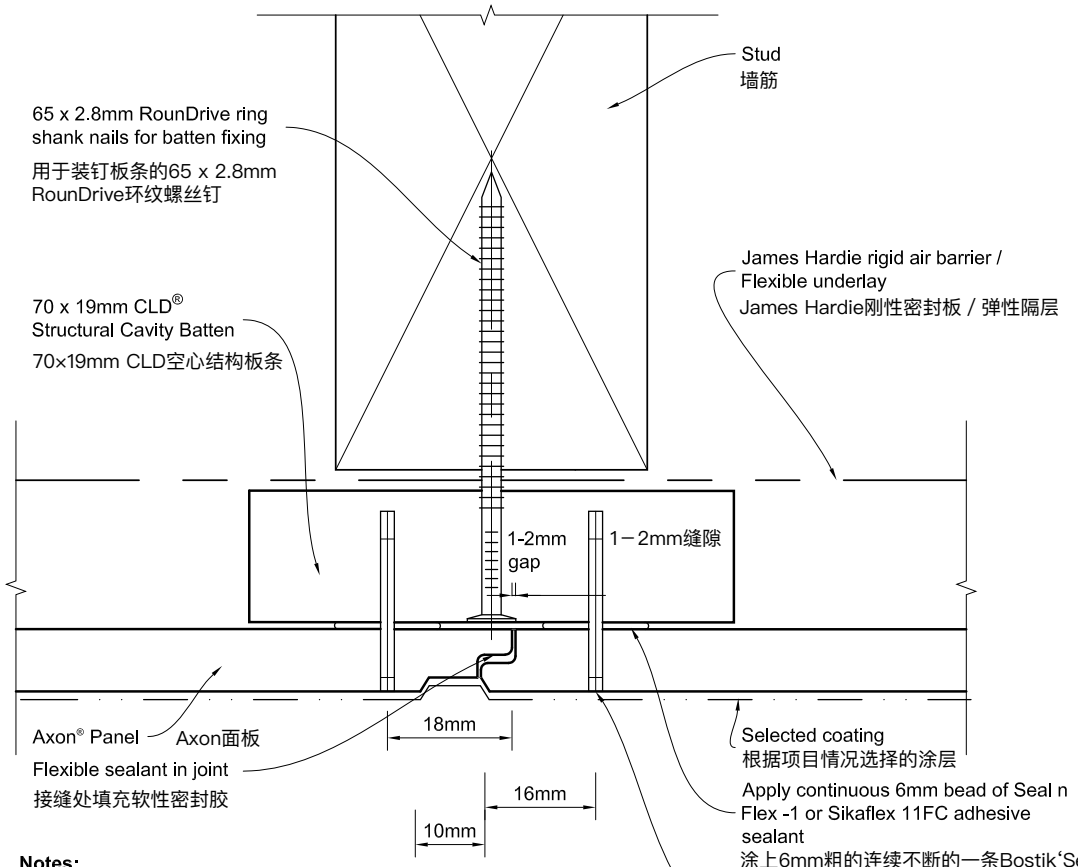
Notes:

- Check panel extends past bottom plate as specified in Architects specification (50mm min).
- uPVC Vent strip must remain level and secure during construction. Cut and fix uPVC vent strip between CLD® Structural Cavity Battens fixed under the panel joints.
- Check vent strip is free from site debris.

注意：

· 检查面板下缘是否如工程师规范里所要求的那样超过了下托板（50mm）以上。
· 施工过程中uPVC通风带必须保持水平和无损。可以切割通风带，以适应面板接缝处的CLD空心结构板条的尺寸。
· 检查通风带是否远离虫鸟及碎屑

Figure 19: Vertical shiplap joint
图19: 纵向鱼鳞板搭接



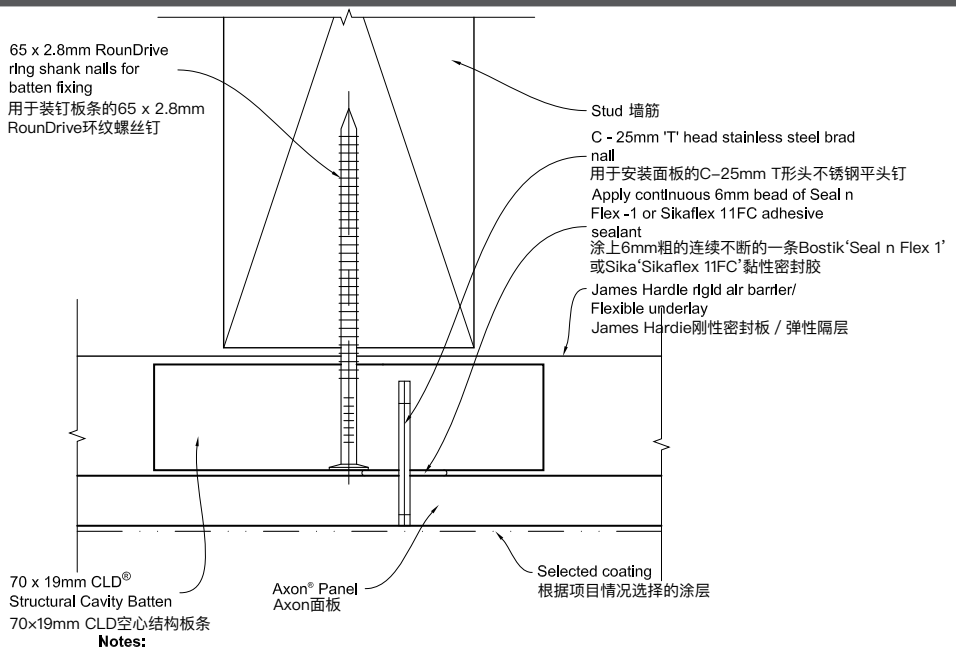
Notes:

- Ensure that a continuous 6mm bead of adhesive sealant is applied between CLD® Structural Cavity Batten and Axon® Panel.
- Ensure that the required edge distance is maintained when fixing.
- Seal cut edges with a primer compatible with final coatings.

注意

· 确保在CLD空心结构板条和Axon面板之间涂上一条连续不断的6mm粗黏性密封胶。
· 确保在安装时保持所有要求的缝隙间距
· 确保用于密封板材末端的底漆与最终涂上的表层漆相互兼容

Figure 20: Intermediate stud fixing
图20: 居中墙筋的固定



Notes:

- Fix panel from the middle of the panel outwards.

注意：
安装面板时从中间开始固定，然后向两边延伸。

Figure 21: Internal corner
图21: 阴角

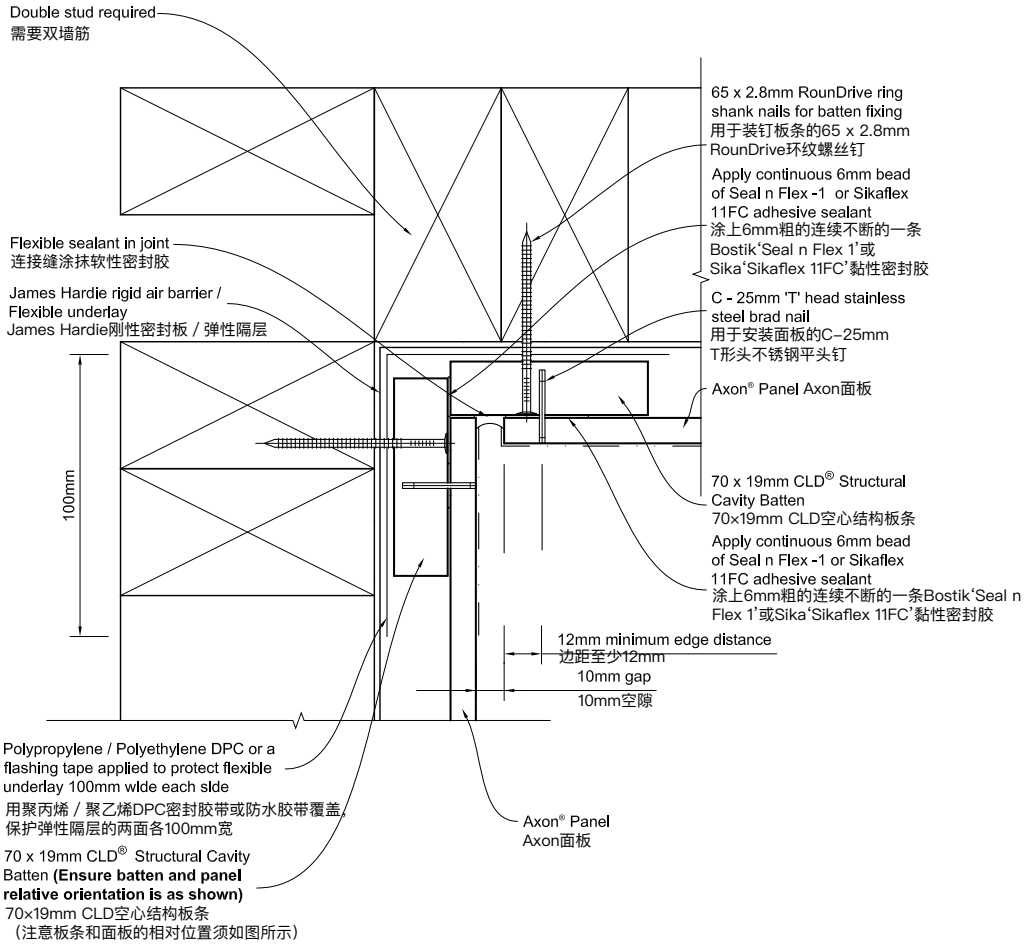


Figure 22: External corner
图22: 阳角

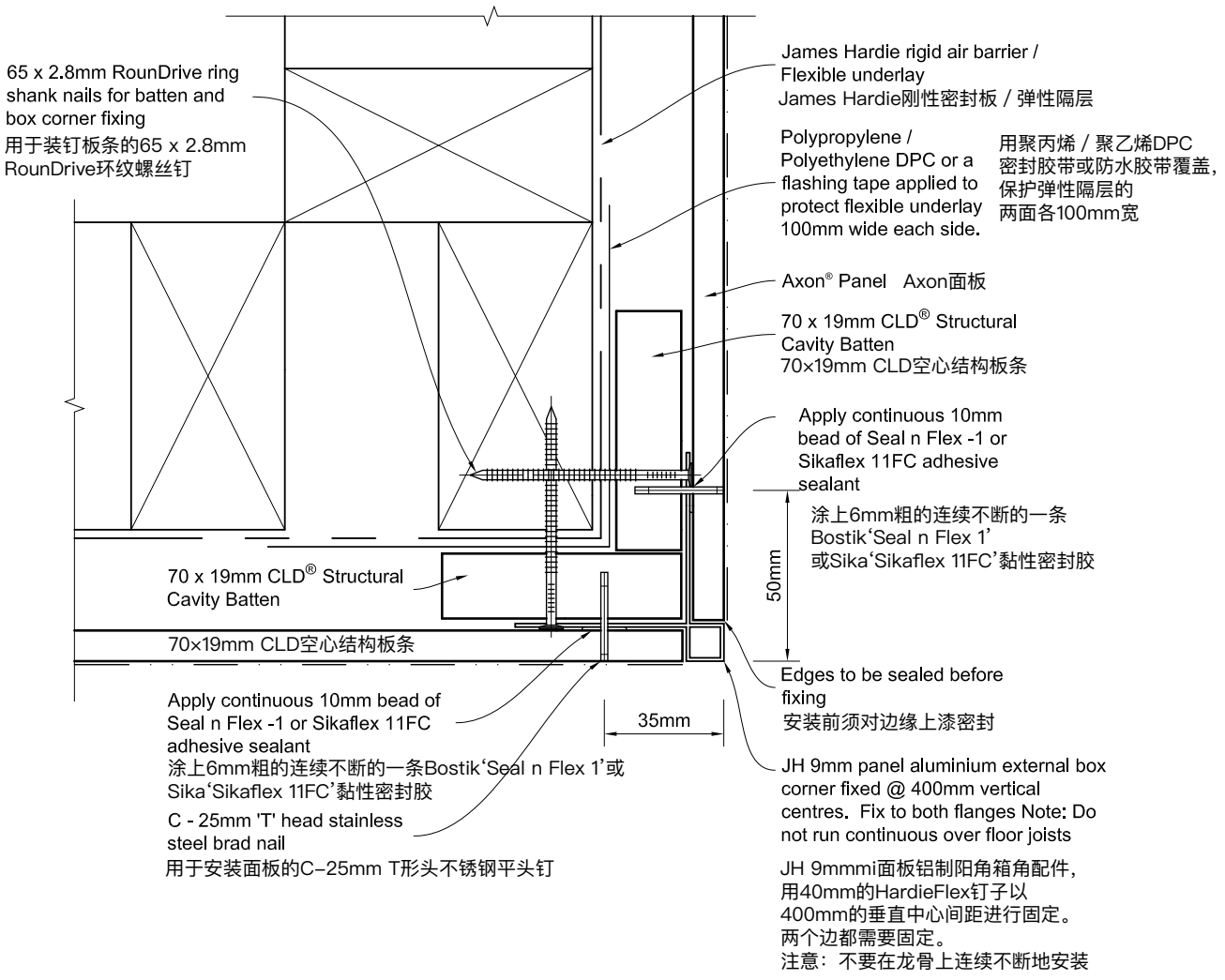


Figure 23: Jointing of CLD Structural Cavity Batten
图23: CLD空心结构板条的连接

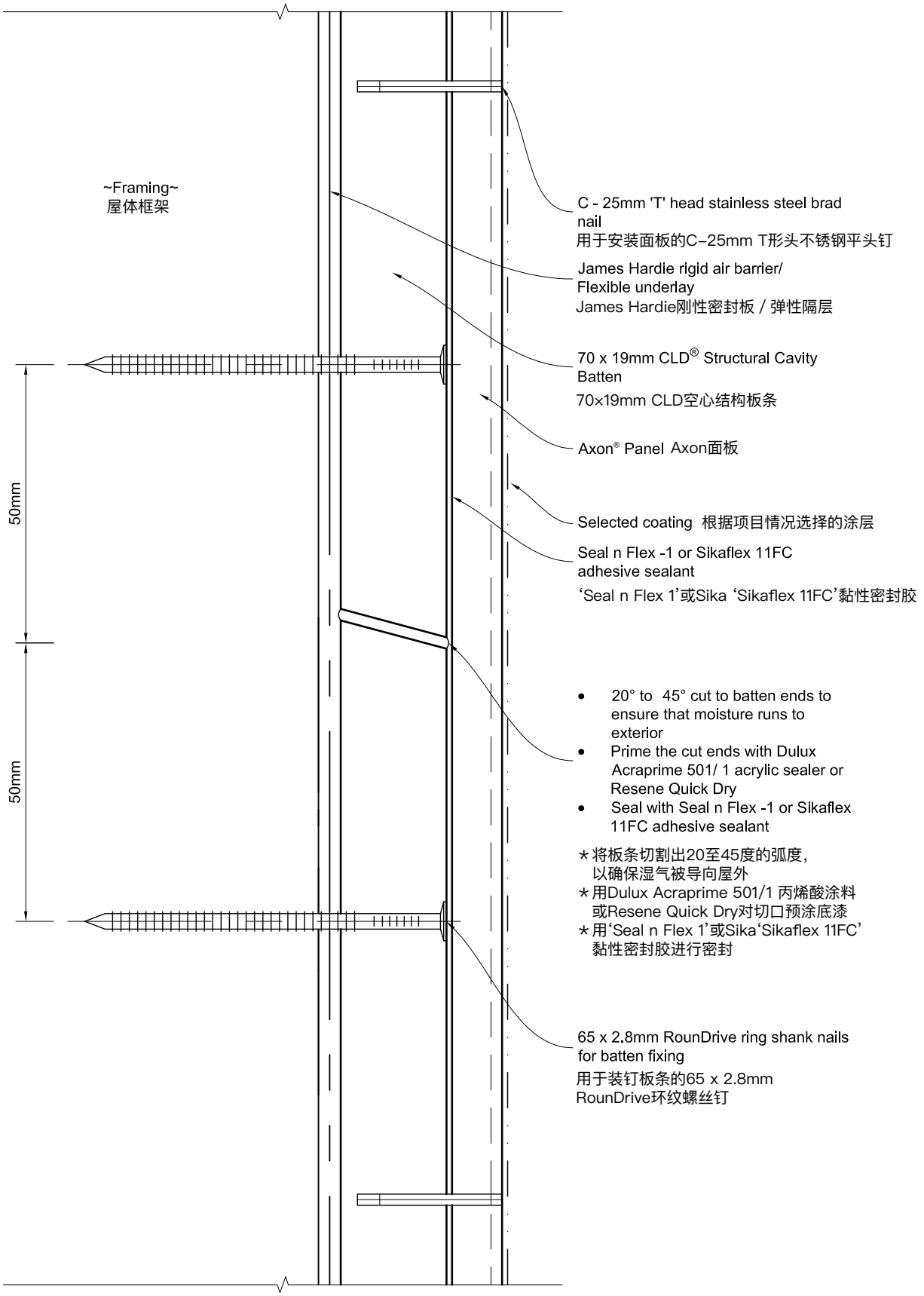
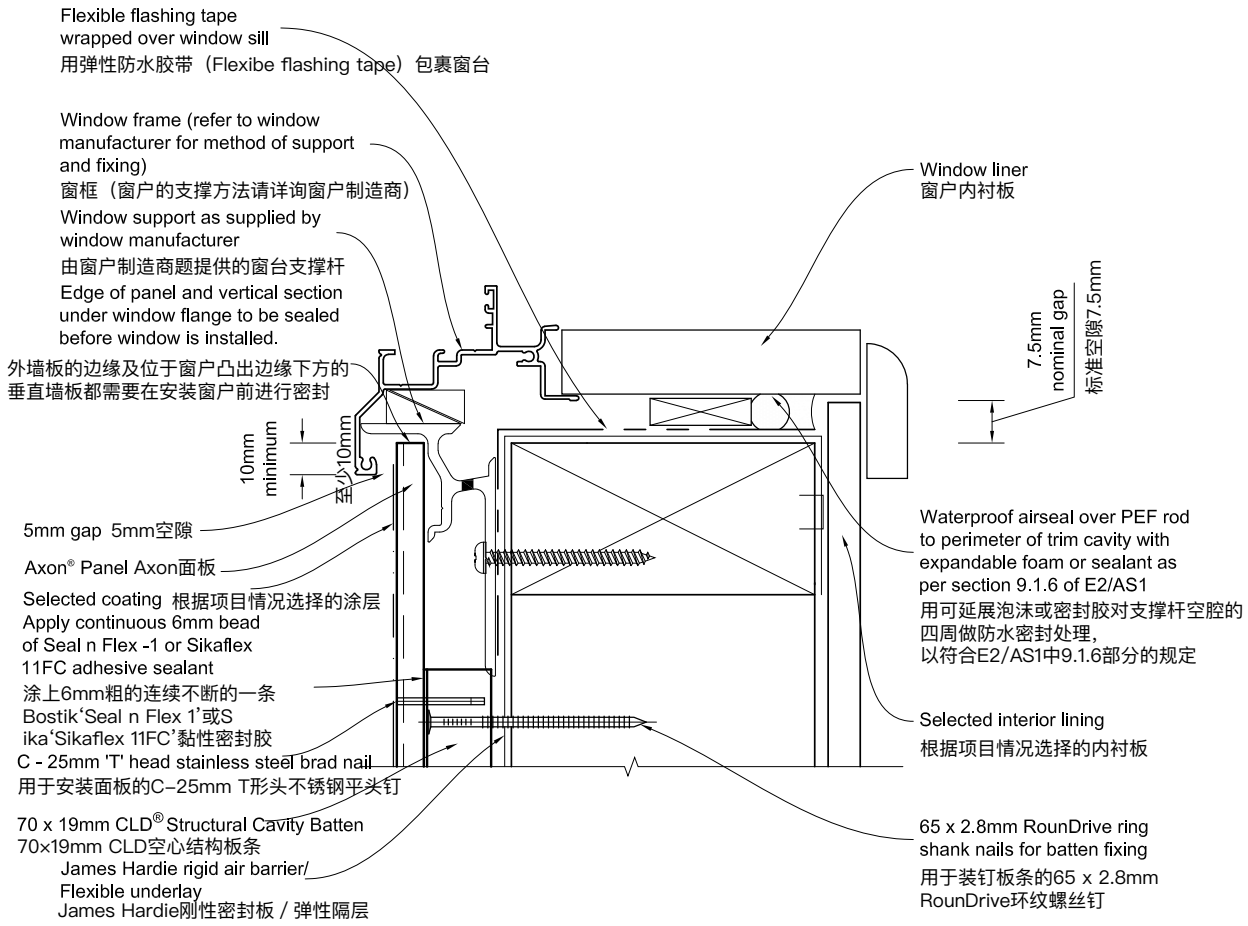


Figure 24: Window sill
图24: 窗台



General notes for materials selection

1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
2. Flexible underlay must comply with acceptable solution E2/AS.
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.

Refer to the manufacturer or supplier for technical information for these materials.

关于材料选择的常规提示
1. 防水材料必须基于所处的环境来选择，详情请参阅NZS3604和NZBC条款E2/AS1, 表20。
2. 弹性隔层必须符合合格方案条款E2/AS1的规定。
3. 防水胶带必须能够与所选用的弹性隔层（flexible underlay） / James Hardie刚性隔板或其他与之直接接触的材料相互兼容。

关于以上材料的技术信息，清参阅材料制造商或供应商所提供的资料

Figure 25: Window jamb
图25: 窗框

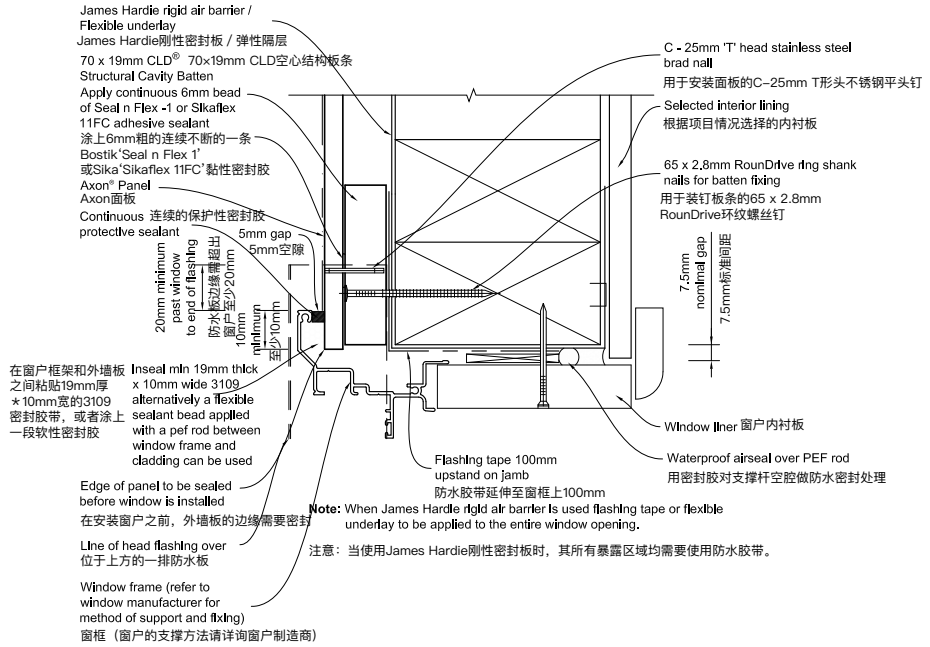


Figure 26: Window head
图26: 窗楣

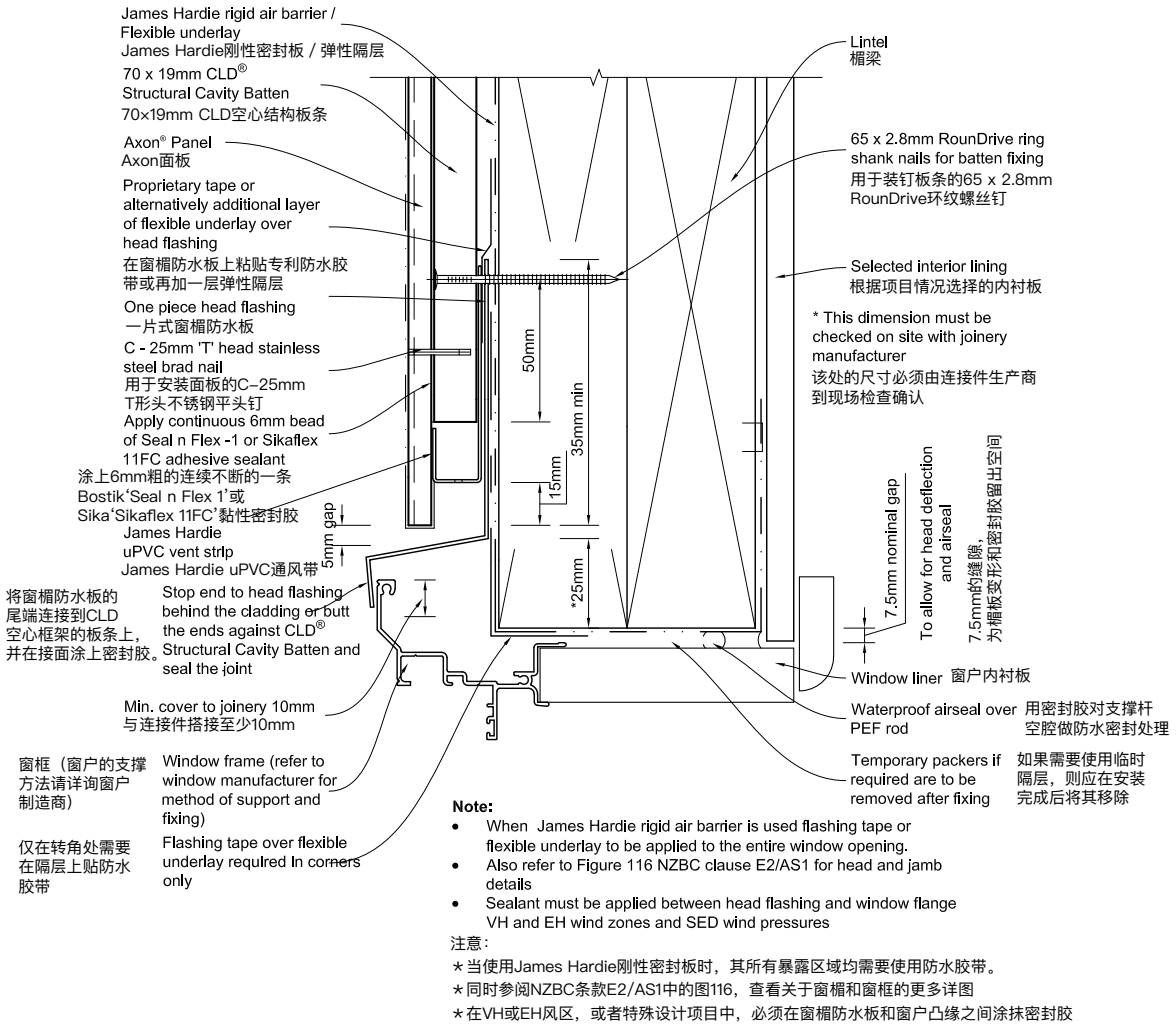
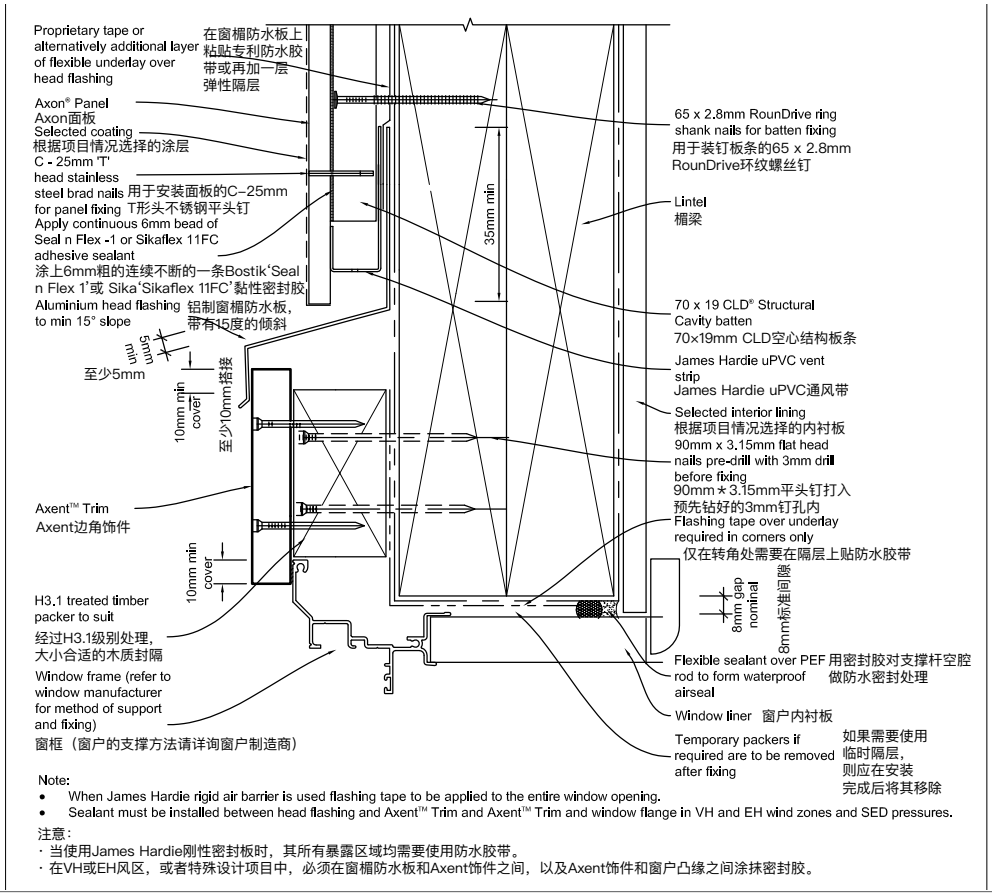


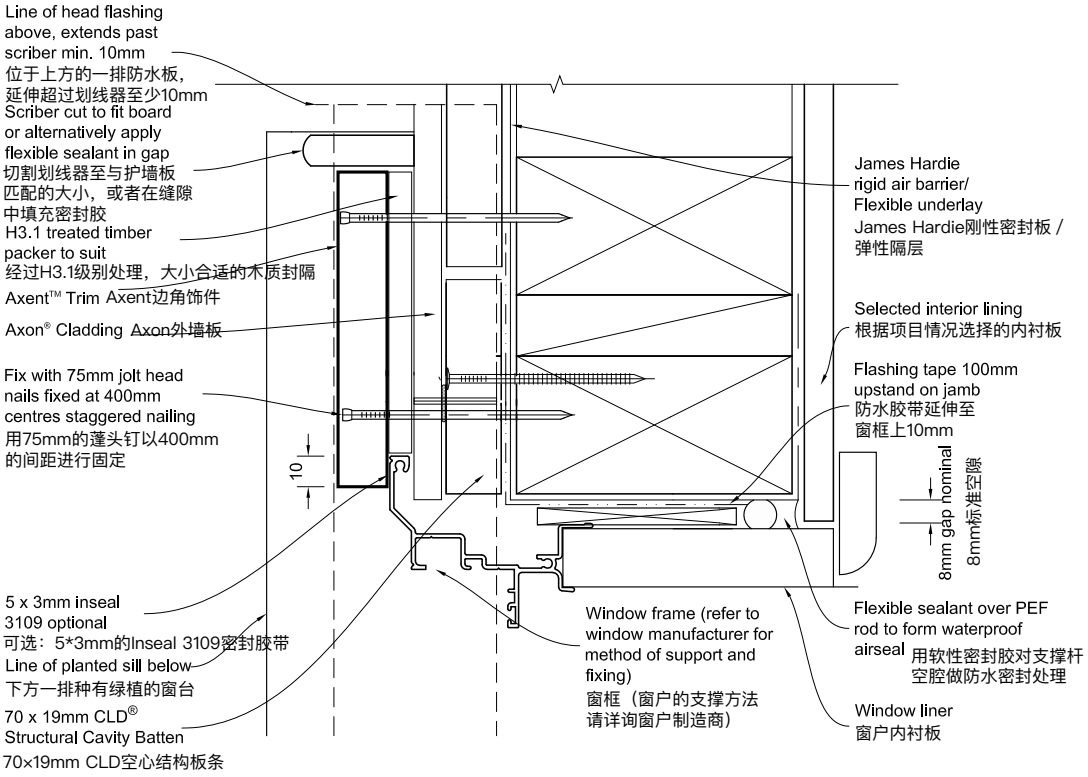
Figure 27: Window head with facings
图27: 带有饰面的窗楣



Note:
- When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening.
- Sealant must be installed between head flashing and Axent™ Trim and Axent™ Trim and window flange in VH and EH wind zones and SED pressures.

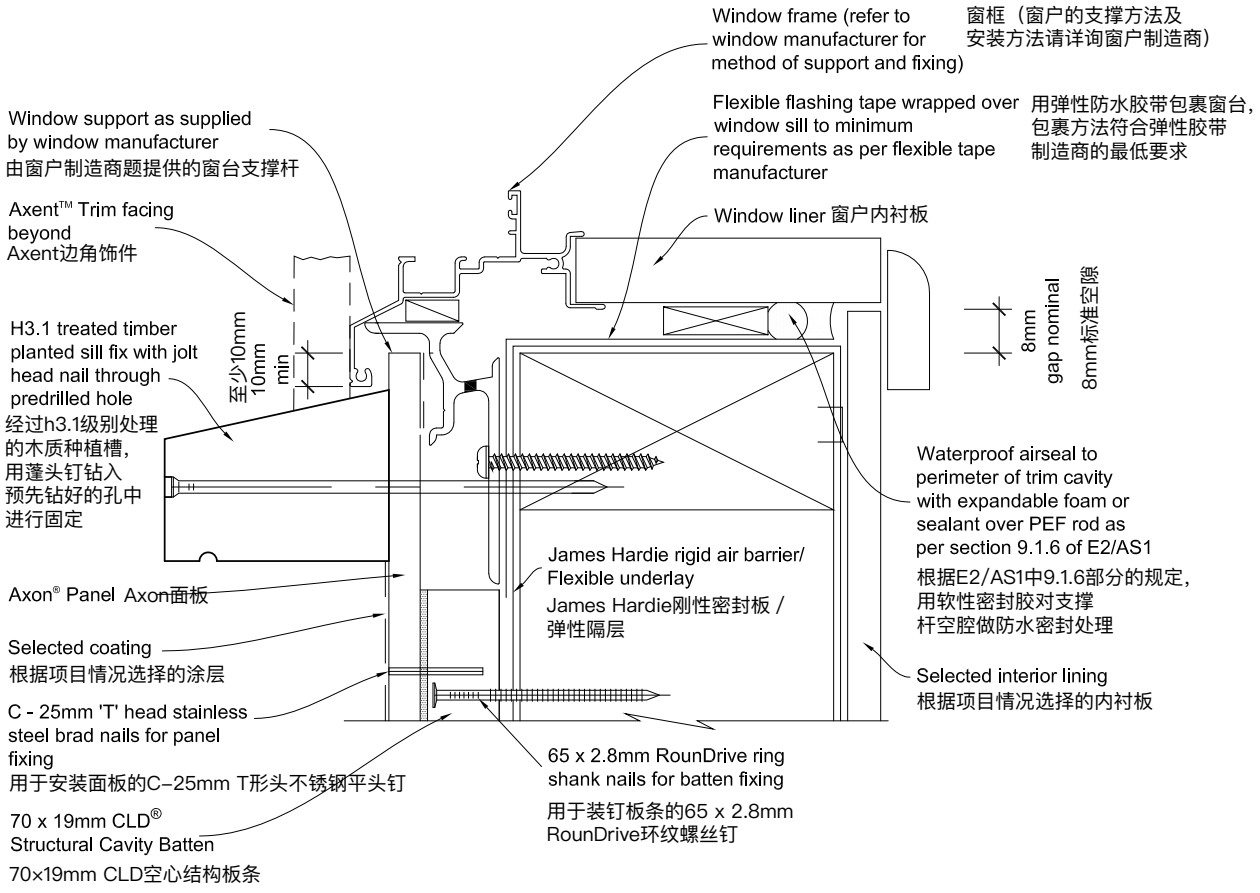
注意：
- 当使用James Hardie刚性密封板时，其所有暴露区域均需要使用防水胶带。
- 在VH或EH风区，或者特殊设计项目中，必须在窗楣防水板和Axent饰件之间，以及Axent饰件和窗户凸缘之间涂抹密封胶。

Figure 28: Window jamb with facings
图28: 带有饰面的窗框



Note: When James Hardie rigid air barrier is used flashing tape to be applied to the entire window opening.
注意： 如果使用James Hardie刚性密封板，必须在全窗开口区配合使用防水胶带。

Figure 29: Window sill with planted sill
图29: 种有绿植的窗台



General notes for materials selection

1. Flashing materials must be selected based on environmental exposure, refer to NZS 3604 and Table 20 of NZBC E2/AS1.
2. Flexible underlay must comply with acceptable solution E2/AS1.
3. Flashing tape must have proven compatibility with the selected flexible underlay and other materials with which it comes into contact.
4. When James Hardie rigid air barriers are used flashing tape to be applied to the entire opening.

Refer to the manufacturer or supplier for technical information for these materials.

材料选择小贴士

1. 防水材料必须基于所处的环境来选择，详情请参阅NZS 3604和NZBC条款 E2/AS1，图20。
2. 弹性隔层必须符合合格方案条款E2/AS1的规定。
3. 防水胶带必须能够与所选用的弹性隔层 / James Hardie刚性隔板或其他与之直接接触的材料相互兼容。
4. 如果使用James Hardie刚性密封板，必须在全窗开口区配合使用防水胶带。

请向开材料制造商或供应商索取相关材料的技术信息。

Figure 30: Horizontal joint at floor joist
图30: 地板龙骨处的水平连接

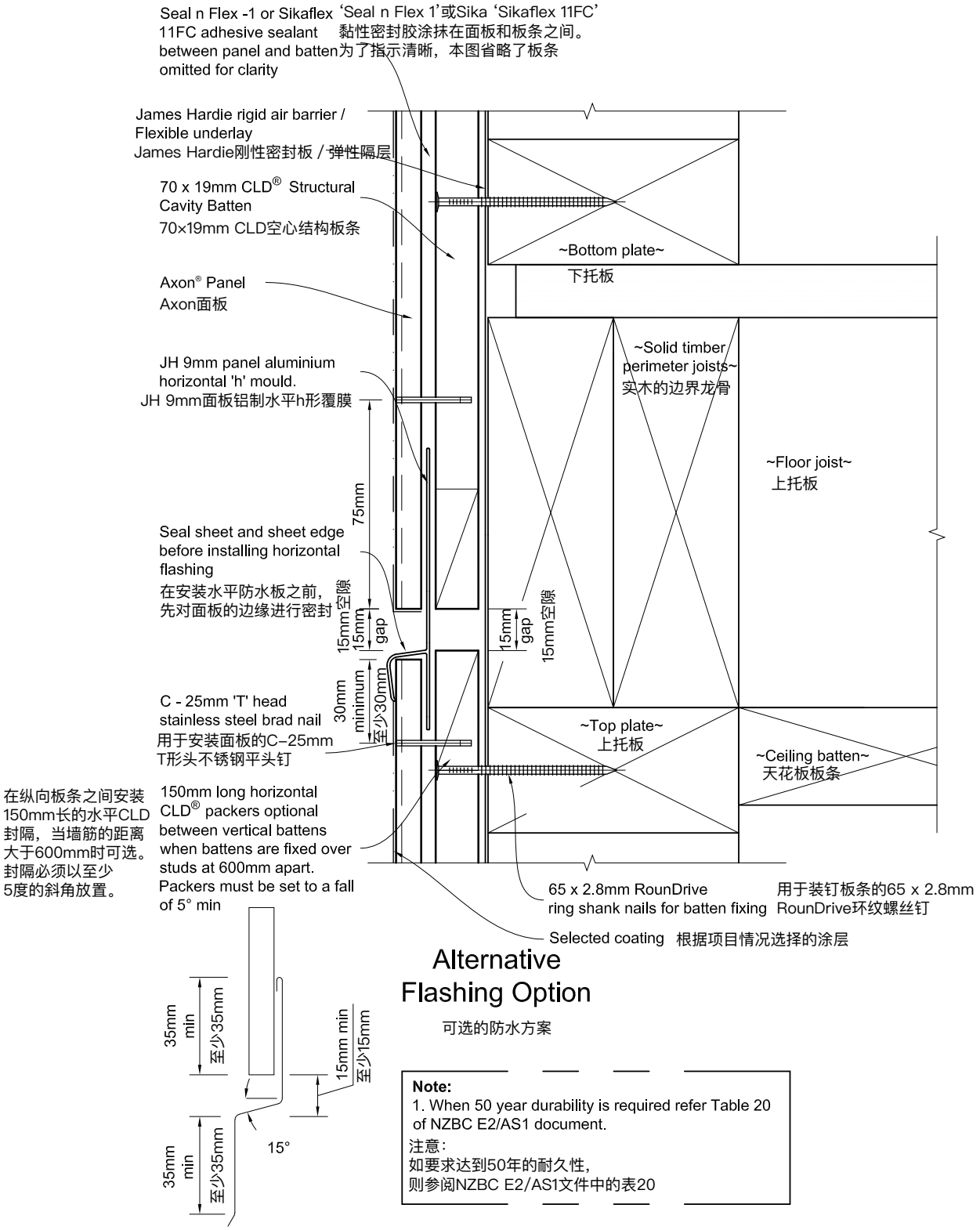


Figure 31: Horizontal joint in tall wall
图31: 高墙中的水平连接

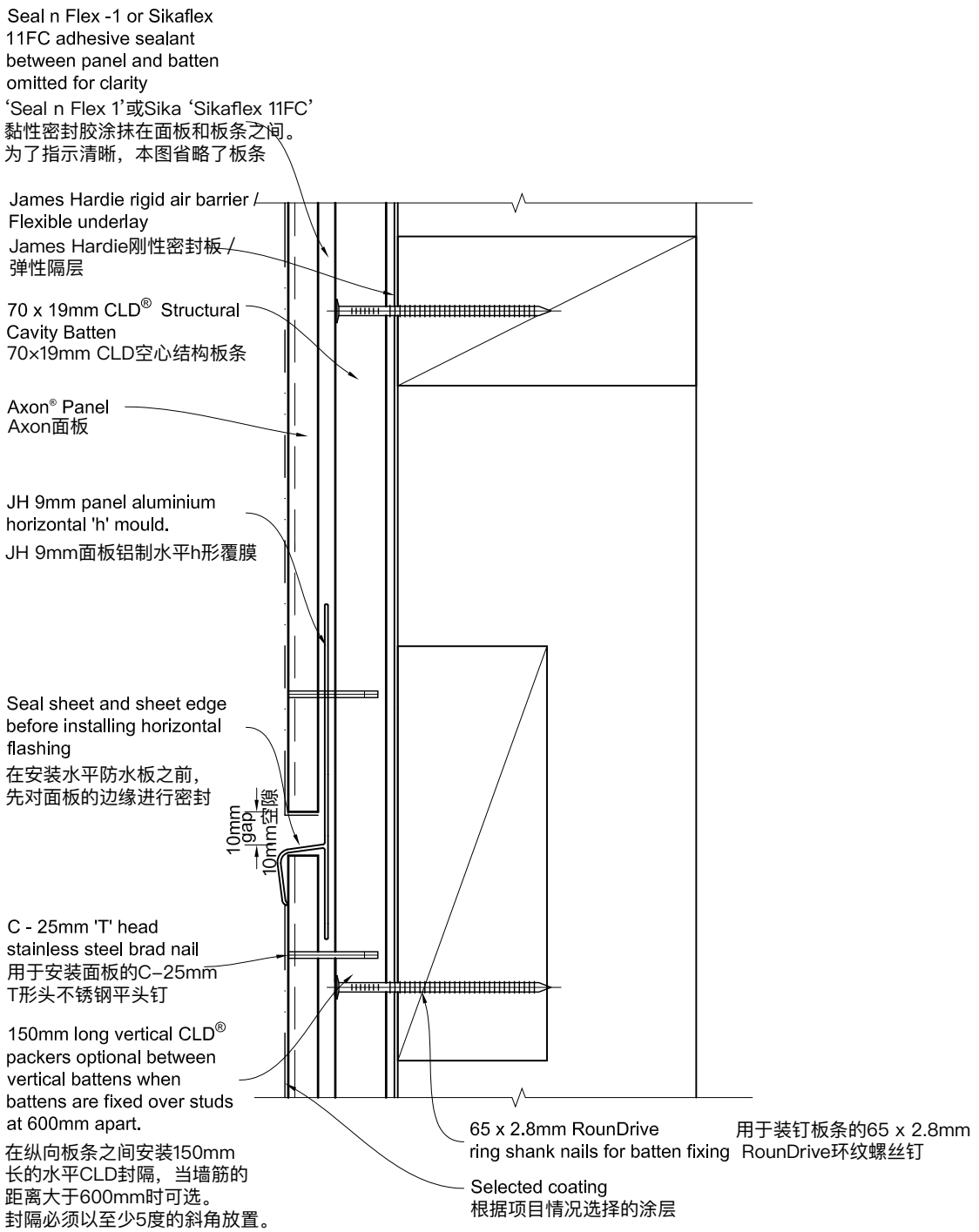


Figure 32: Soffit detail
图32: 拱腹详图

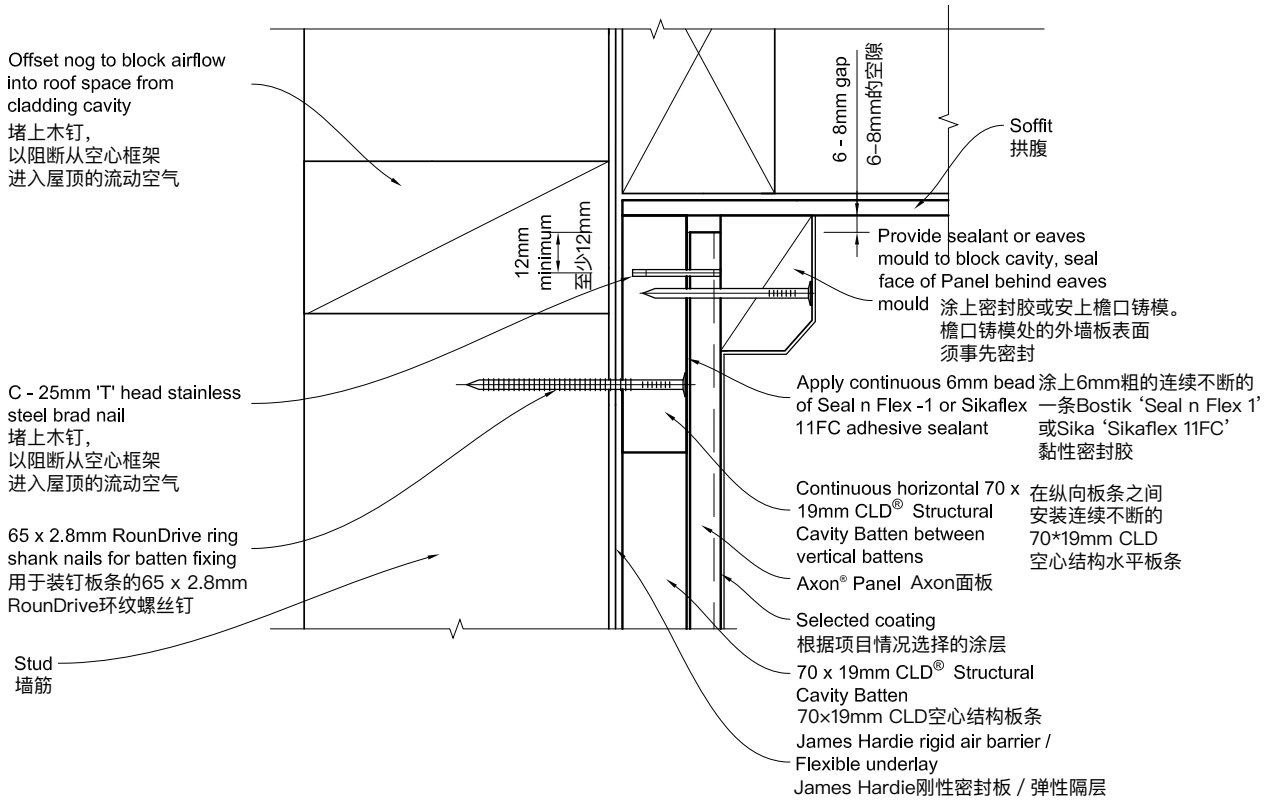


Figure 33: External corner at ‘h’ mould joint detail
图33: 在h形覆膜连接件处的阳角详图

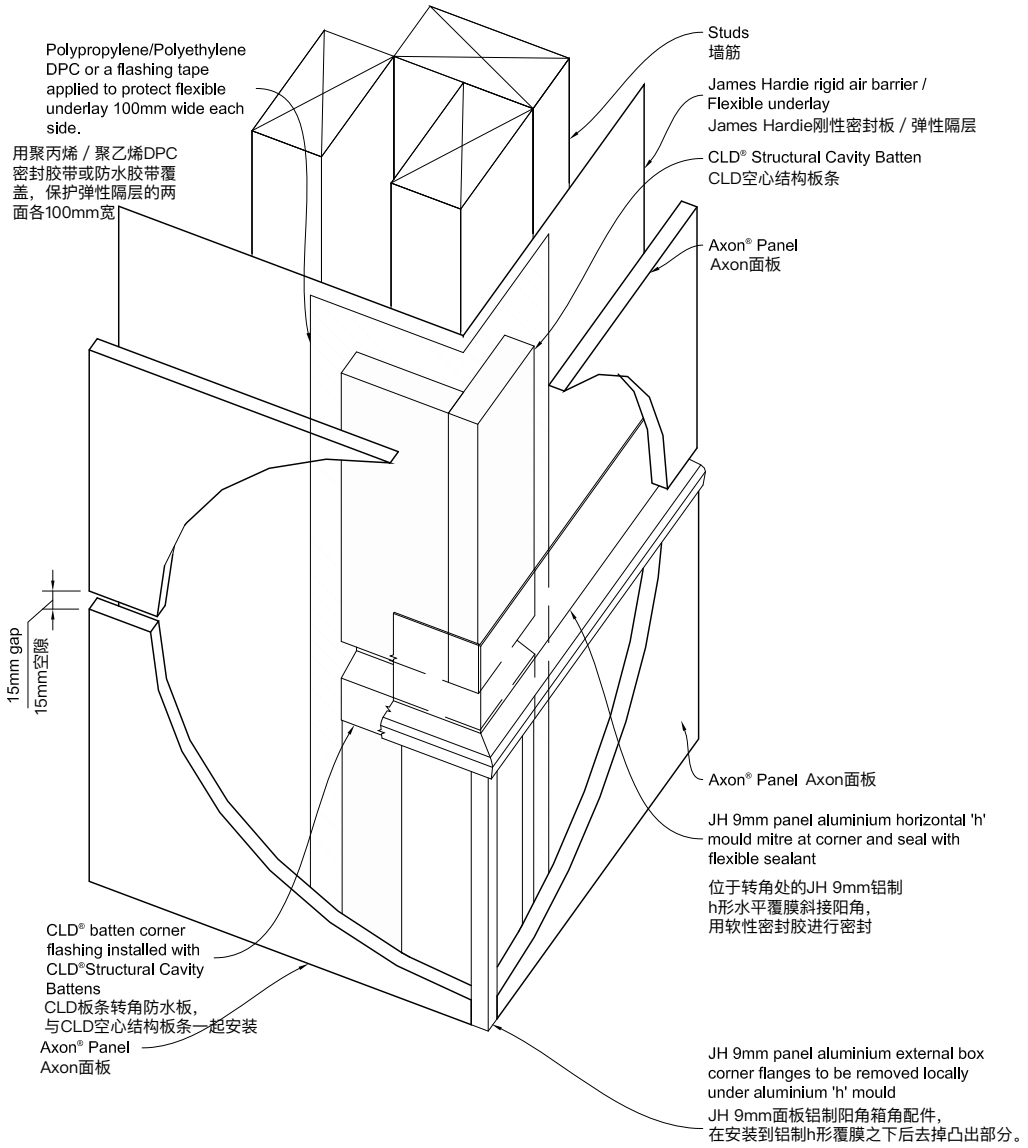


Figure 34: Cavity pipe penetration
图34: 空心结构中管道的穿透

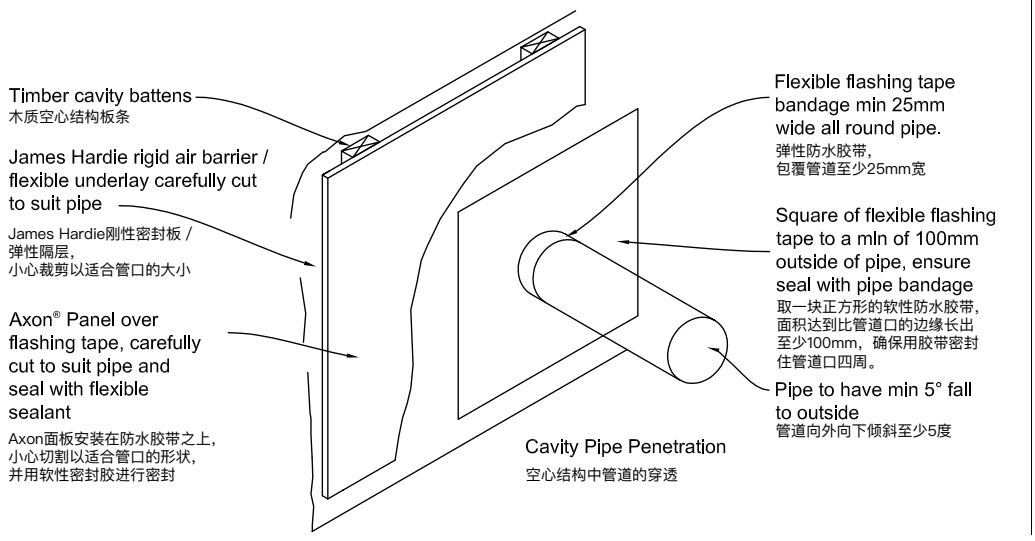


Figure 35: Internal corner at 'h' mould joint detail
图35: 在h形覆膜连接件处的阴角详图

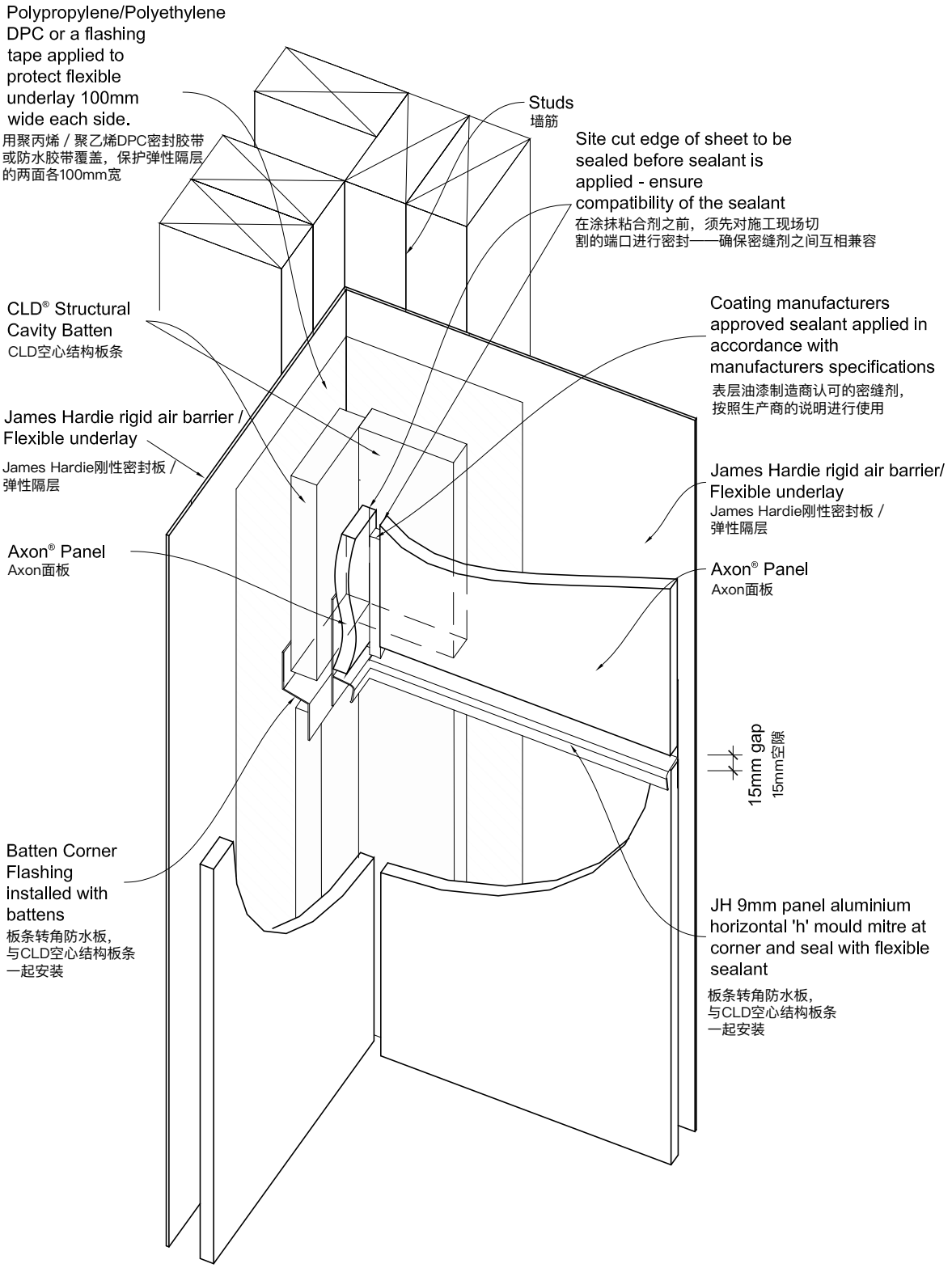


Figure 36: Aluminium ‘h’ mould joiner
图36: 铝制h形覆膜连接件

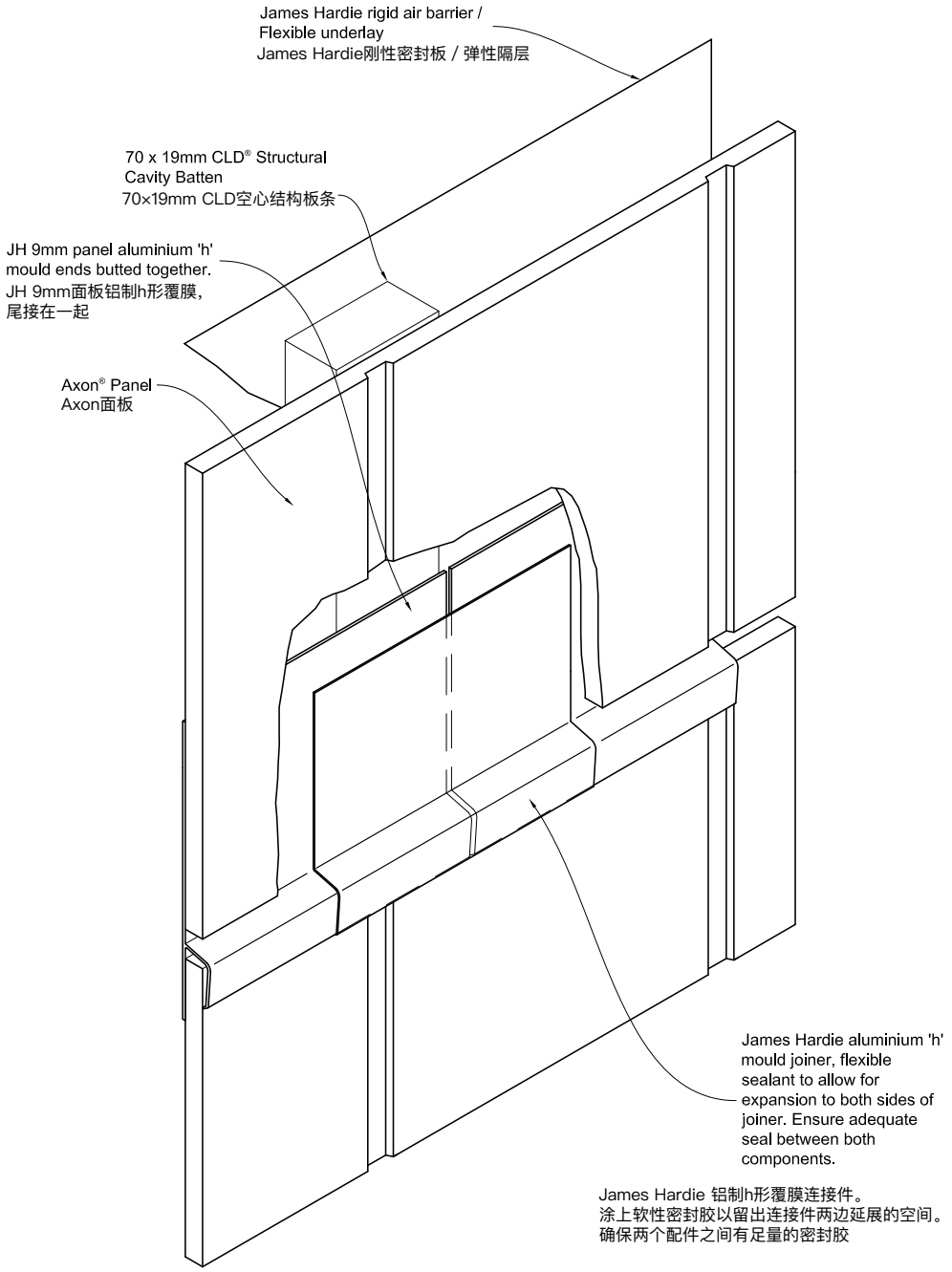
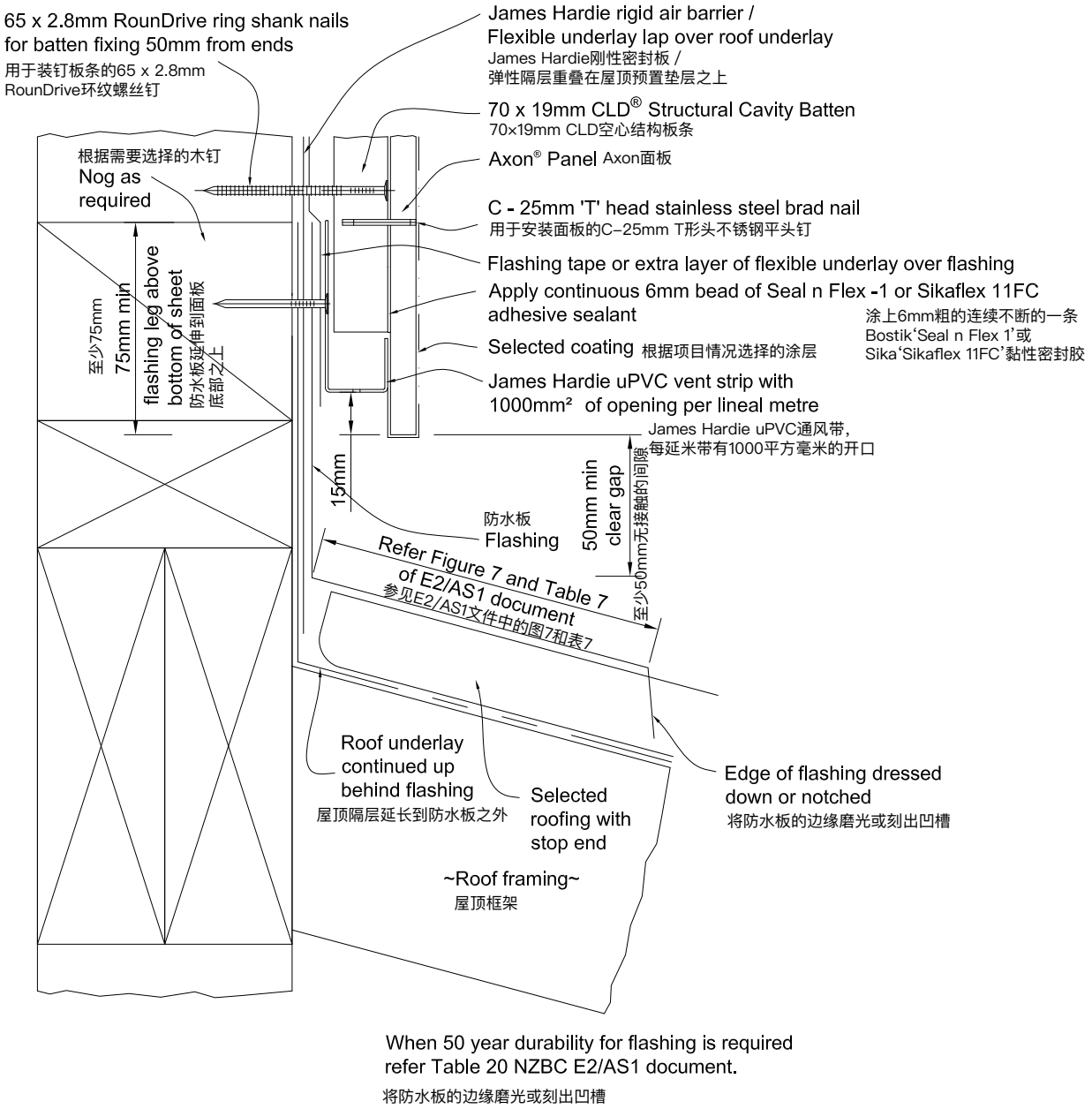
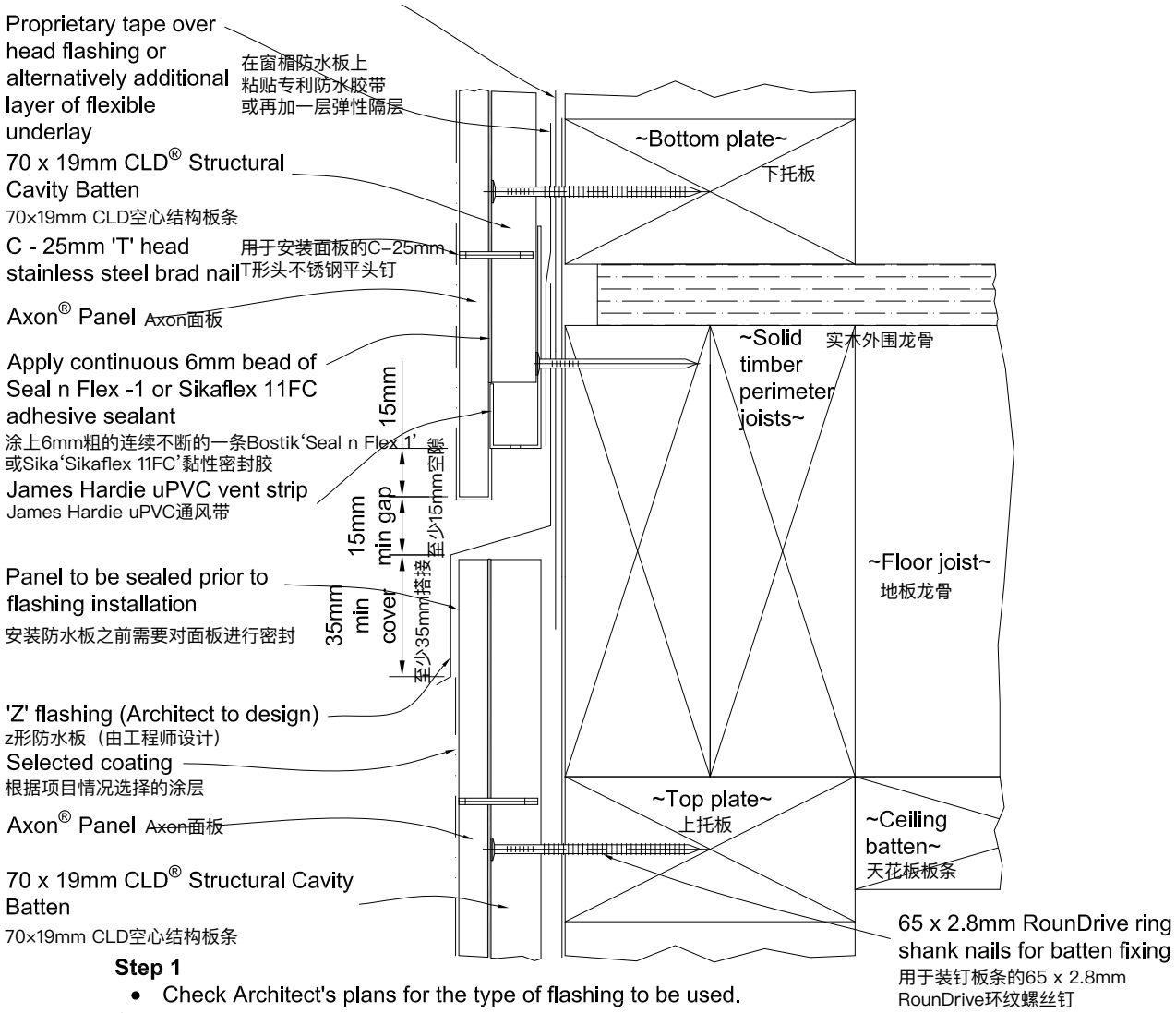


Figure 37: One piece apron flashing joint
图37: 一片式烟囱防水板连接件



When 50 year durability for flashing is required refer Table 20 NZBC E2/AS1 document.
将防水板的边缘磨光或刻出凹槽

Figure 38: Drained flashing joint at floor joist
图38: 地板龙骨处的排水式防水板



Step 1

- Check Architect's plans for the type of flashing to be used.

Step 2

- Check fixing centres and edge distances.
- If top fixings are to be hidden by the Z flashing they will need to be fixed and sealed before the Z flashing is installed.
- Cut edges need to be primed with sealer.

Step 3

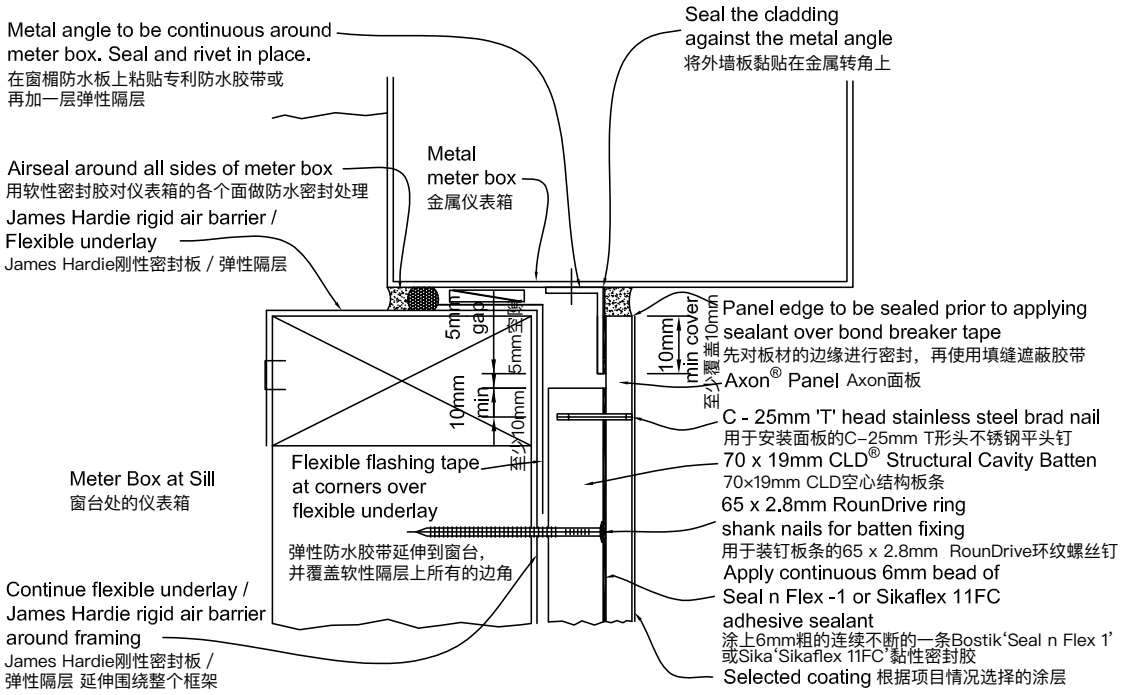
- When 50 year durability is required refer Table 20 E2/AS1.

Step 4

- The flashing to be placed in the centre of the floor joists. Do not fix CLD® Structural Cavity Battens or panels into floor joists.

第一步：
查看建筑工程师的计划，找出适用的防水板类型
第二步：
查看安装中的中心距离和边缘距离
如果顶部的安装会被z形防水板挡住，则应当先完成顶部安装并密封，而后再安装z形防水板。
被切割的边缘需用密封涂料进行预涂底漆。
第三步：
如果需要50年以上的耐久度，则需参阅20 E2/AS1中的表20.
第四步：
需在地板龙骨的中心位置装防水板。请勿将CLD空心结构板条或外墙板安装在地板龙骨上。

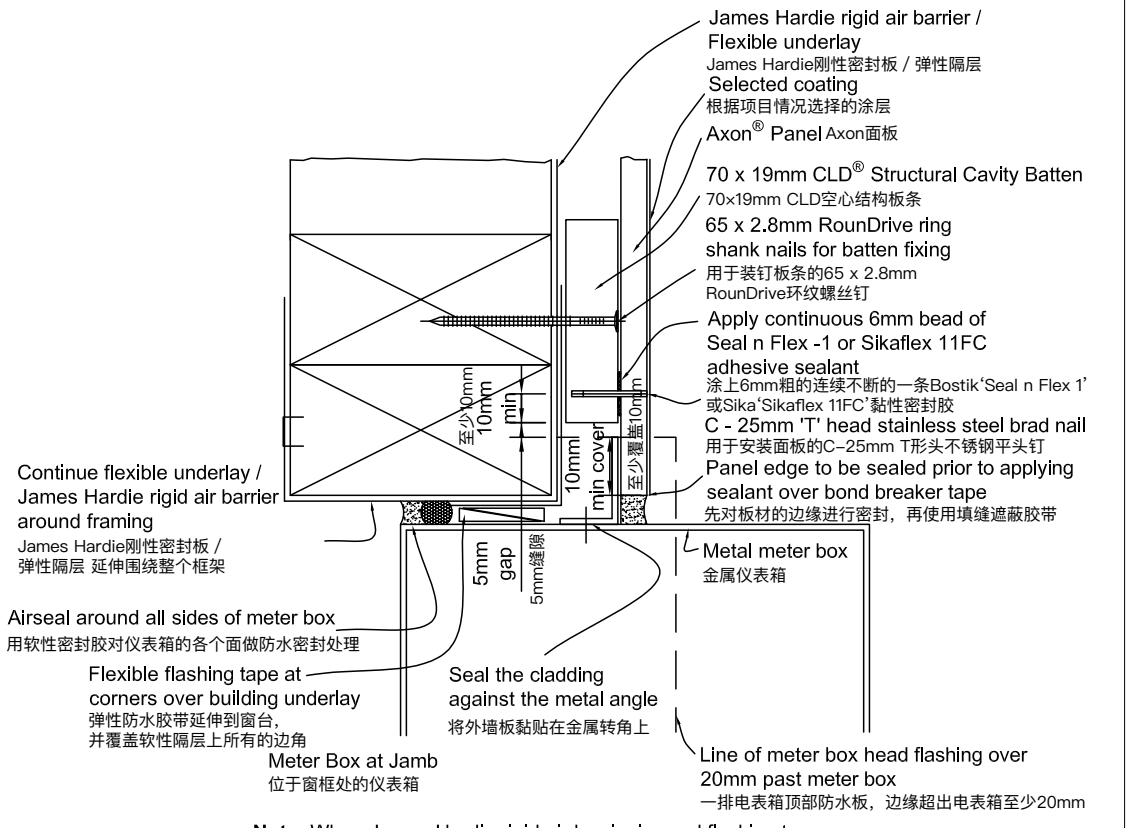
Figure 39: Meter box at sill
图39: 位于窗台的仪表箱



Note: When James Hardie rigid air barrier is used flashing tape or flexible underlay to be applied to the entire meter box sill.

注意：如果使用James Hardie刚性密封板，则需要在整个带有仪表箱的窗台区域加防水胶带或弹性隔层

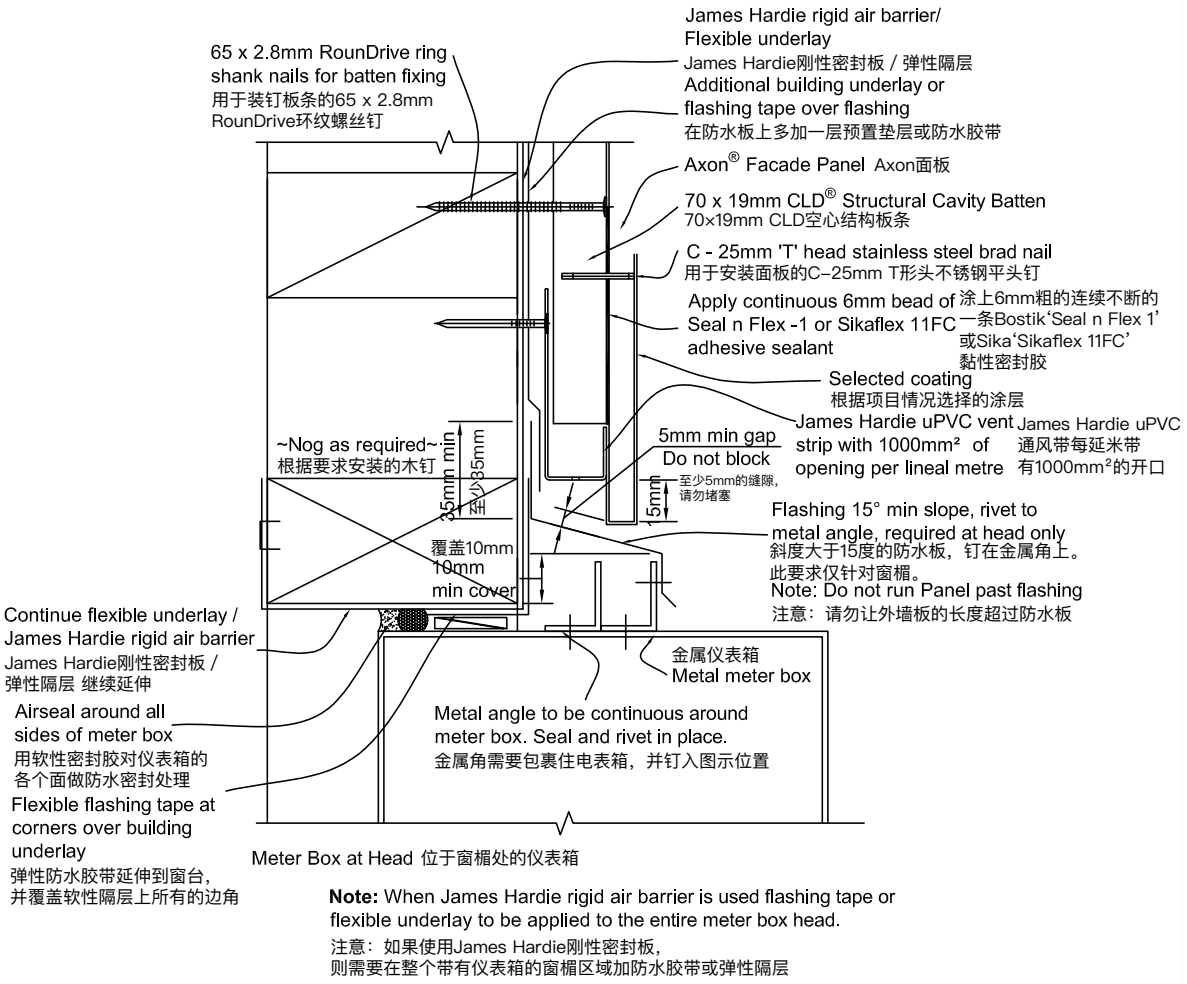
Figure 40: Meter box at jamb
图40: 位于窗框处的仪表箱



Note: When James Hardie rigid air barrier is used flashing tape or flexible underlay to be applied to the entire meter box jamb.

注意：如果使用James Hardie刚性密封板，则需要在整个带有仪表箱的窗框区域加防水胶带或弹性隔层

Figure 41: Meter box at head
图41: 位于窗楣处的仪表箱



Meter Box at Head 位于窗楣处的仪表箱

Note: When James Hardie rigid air barrier is used flashing tape or flexible underlay to be applied to the entire meter box head.

注意：如果使用James Hardie刚性密封板，则需要在整个带有仪表箱的窗楣区域加防水胶带或弹性隔层

Figure 42: Garage door jamb
图42：车库门框

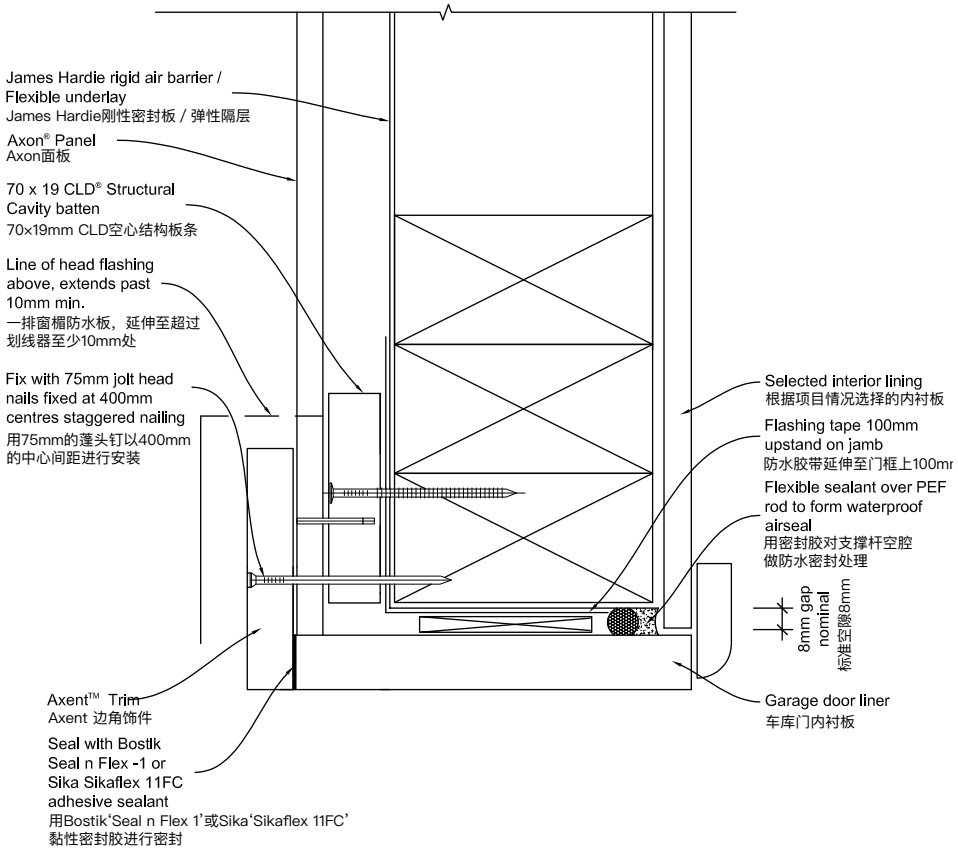
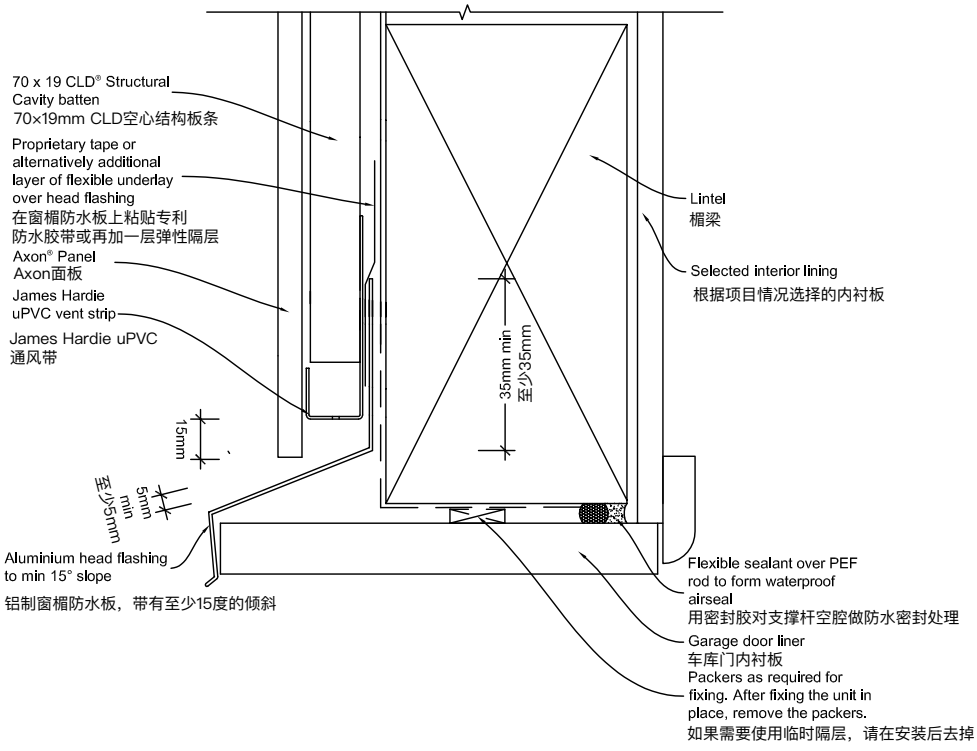


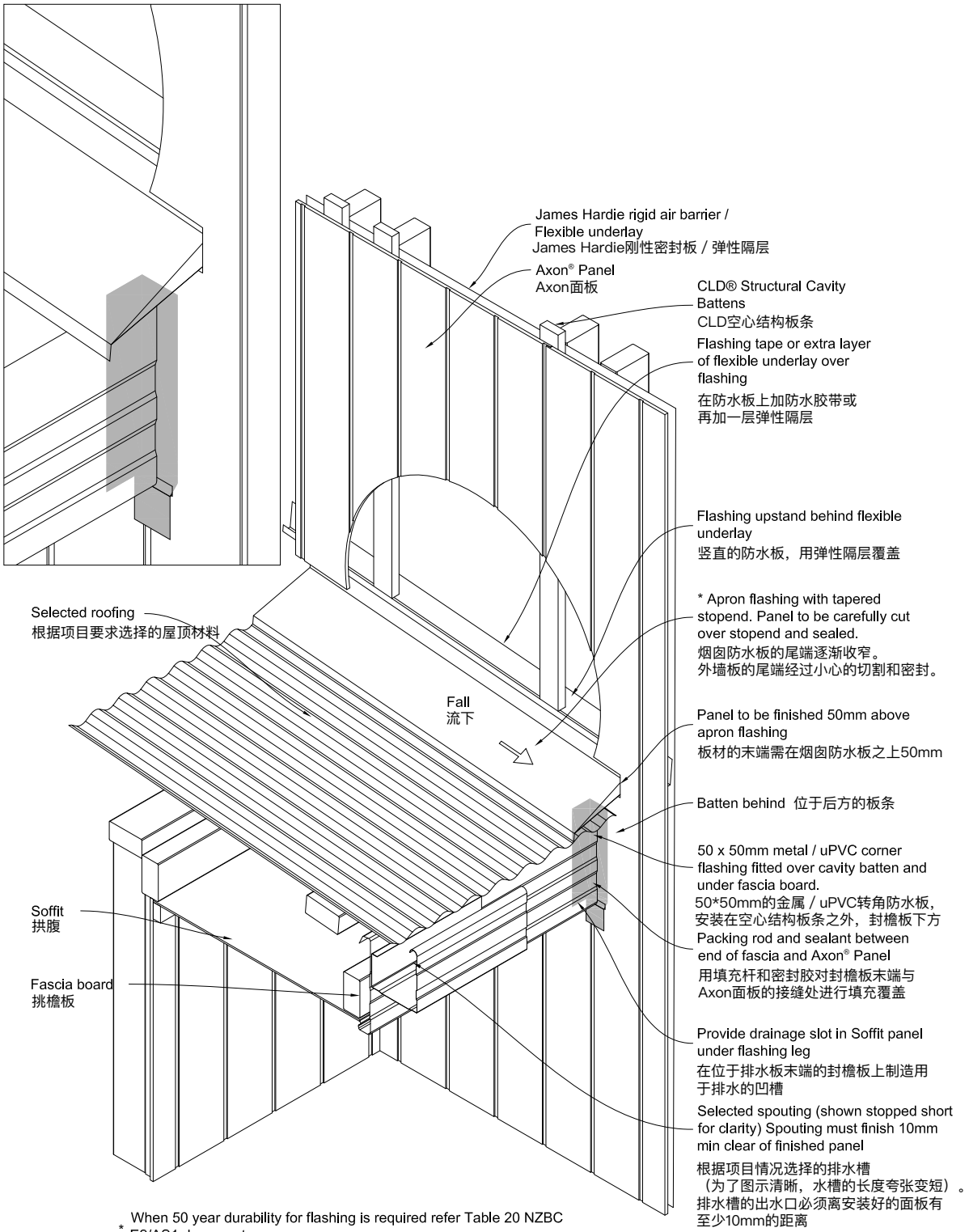
Figure 43: Garage door head
图43: 车库门楣



Sealant must be applied between head flashing and door liner in VH and EH wind zones and SED wind pressures.

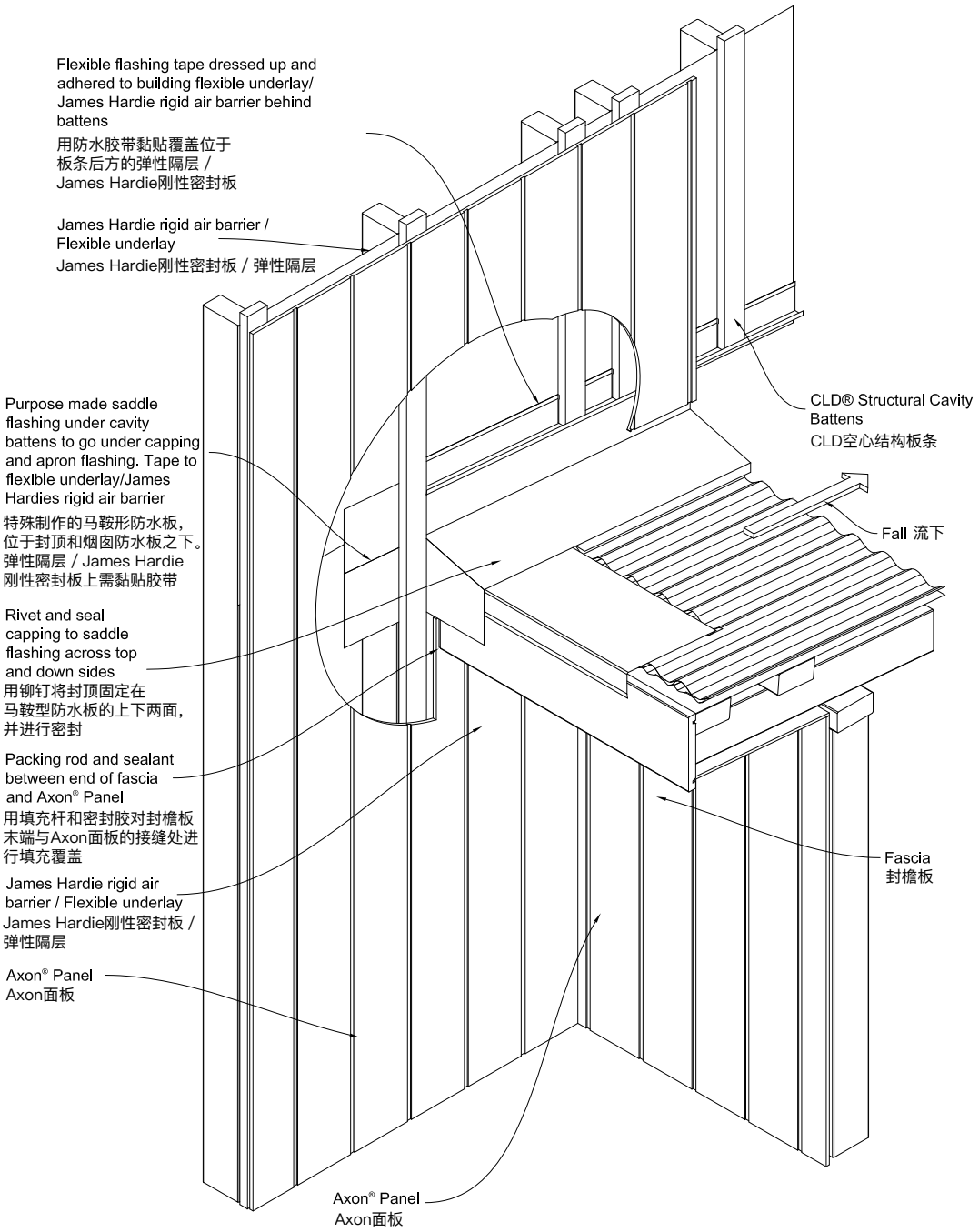
在VH风区、EH风区以及特殊设计项中，窗楣防水板和饰件之间必须涂抹密封胶。

Figure 44: Junction between Axon Panel and fascia board
图44: Axon面板与挑檐板的连接



* When 50 year durability for flashing is required refer Table 20 NZBC E2/AS1 document.
如果需要50年以上的耐久性，则必须参阅E2/AS1中的表20。

Figure 45: Enclosed roof to wall intersection
图45: 封闭空间中屋顶与墙的连接



Notes **备忘录**

Notes **备忘录**

Product Warranty 产品质保

James Hardie New Zealand Limited ("James Hardie") warrants for a period of 15 years from the date of purchase that the Axon™ Panel and CLD™ Structural Cavity Battens (the "Product"), will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, fire and damage from termite attacks to the extent set out in James Hardie's relevant published literature current at the time of installation. James Hardie warrants for a period of 15 years from the date of purchase that the accessories supplied by James Hardie will be free from defects due to defective factory workmanship or materials.

Nothing in this document shall exclude or modify any legal rights a customer may have under the Consumer Guarantees Act or otherwise which cannot be excluded or modified at law.

James Hardie新西兰有限公司（简称"James Hardie"）保证Axon面板和CLD空心结构板条（以下简称"产品"）在售出之日起的15年内，不会出现由于不合格做工及材料问题所导致的产品缺陷。在满足以下担保条件的情况下，其防裂、耐腐蚀、抗火、防白蚁咬噬的性能会达到安装当时James Hardie所发布的最新相关文献中所声明的程度。James Hardie担保，由James Hardie所售卖的配件在购买之日起的15年内不会出现由于不合格做工或材料问题所导致的损坏。本文件中的任何内容都不能剥夺或削弱消费者保护法（Consumer Guarantees Act）所规定的任何消费者合法权利，因其是无法被剥夺或削弱的。

CONDITIONS OF WARRANTY: 质保条件:

The warranty is strictly subject to the following conditions:

a) James Hardie will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation.
索赔者必须提供购买凭证，且在产品缺陷应当被发现之日起的30天内递交书面的投诉声明，否则James Hardie将不承担任何违约责任。如果产品有在安装前就能发现的明显缺陷，则消费者必须在安装开始前递交投诉。

b) This warranty is not transferable. 本质量保证不可转移。

c) The Product must be installed and maintained strictly in accordance with the relevant James Hardie literature current at the time of installation and must be installed in conjunction with the components or products specified in the literature. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice.
产品必须按照安装当时现行的James Hardie相关说明文件进行安装和维护，且必须按照说明文件中的要求选择配套使用的产品。 而且，使用中所有用于本产品之上或与本产品相接触的产品，包括涂料和固件连接系统，都必须严格按照相应制造商的说明和演示进行使用、安装和维护。

d) The project must be designed and constructed in strict compliance with all relevant provisions of the current New Zealand Building Code ("NZBC"), regulations and standards.
工程的设计和施工必须严格遵守现行版新西兰建筑规范（NZBC)的各项相关规定，以及其他法律和规范。

e) The claimant's sole remedy for breach of warranty is (at James Hardie's option) that James Hardie will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product.
如果违约成立，索赔方所获得的唯一补偿（由James Hardie 选择）是：James Hardie 将为消费者替换合格的产品，修复有缺陷的产品，或赔偿替换产品或修复产品所产生的费用；

f) James Hardie will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing James Hardie will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces).
无论源于合同、个人疏忽或其他原因，James Hardie不对任何(直接的或间接的)损失或损坏负责，包括财产损坏或人身伤害、间接性损失、经济损失或利润损失 。在不改变或限制上述条件的前提下，James Hardie也不对任何由于以下原因所导致的损失、破坏或故障承担责任：不合格的施工工艺、不合格的设计或详图 、地表沉降或结构性移动/或该产品所附着物的移动、错误的房屋结构设计、不可抗因素(包括但不限于地震、龙卷风、洪水或其它恶劣气候条件或罕见天气等)、风化或产品的涂漆/涂料性能不佳、正常磨损与消耗、 产品表面或产品本身(不管在暴露面还是内部)发霉、真菌 生长、细菌或其它微生物生长等导致的损害和缺陷。

g) All warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law.
在法律许可的范围内，所有除本质量保证所包含条款之外的其他保证、条件、责任和义务都不在承诺范围之内。

h) If meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement Products due to the effects of weathering and variations in materials over time.
如果依据本保证书提出的某项索赔成立，而赔偿内容涉及到重新喷涂某产品，则由于天气或不同时段材料差异的原因，替换产品和原产品之间可能存在色差。

Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) above. James Hardie has tested/assessed the performance of the Axon™ Panel when installed in accordance with the Axon™ Panel technical specification, in accordance with the standards and verification methods required by the NZBC and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.
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