GOLDEN POWER
HUMAN HABITAT

Installation Guide

Tongue-and-Groove Exterior Wall Panels

TECHNICAL

GOLDEN POWER is a leading manufacturer of cellulose fibre cement boards with over 20 years of track record in the industry, exporting to many countries worldwide.

GOLDEN POWER's products have a wide range of applications, spanning from residential, commercial, institutional, to industrial, and leisure and hospitality sector. We provide solutions for ceilings, partitioning, feature wall lining, cladding, fascia, eave lining, skirting and cornices, decking, flooring, and many more.

GOLDEN POWER products adhere to ISO 9001 and EN13501-1.
GOLDEN POWER has been awarded the prestigious China Green Label,
GOLDEN POWER is your choice for safe, strong and sustainable builds.

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PRODUCT ADVANTAGES

FAST INSTALLATION

SMOOTH SURFACE

WATER RESISTANT

DRY CONSTRUCTION

TOUGH AND FLEXIBLE

DURABLE

NON HAZARD

FIRE RESISTANCE

TERMITE PROOF

COST EFFECTIVE

VERSATILE IN APPLICATIONS

VERSATILE IN SURFACE FINISHES

ROT FREE

HOUSE COOLING

1.1 产品特性 | Product Characteristics

GOLDEN POWER 企口外墙板采用高性能纤维水泥基材，经特殊工艺制造，具有以下卓越性能：

优异耐候性：抗紫外线、耐温差变化
防火等级 A 级：800°C 高温下不燃不变色
防霉自洁：表面抗污染，易清洁维护
绿色环保：通过国家绿色建材认证
持久美观：颜色稳定，纹理自然

GOLDEN POWER Tongue-and-Groove Exterior Wall Panels are manufactured from high-performance

fiber cement using specialized processes, offering the following exceptional properties:

Excellent Weather Resistance: UV resistant, withstands temperature variations

Fire Rating Class A: Non-combustible and color stable at 800°C

Mold Resistant & Self-Cleaning: Stain-resistant surface, easy to clean and maintain
Environmentally Friendly: Certified as National Green Building Material
Durable Aesthetics: Color stable, natural texture

1.2 技术规格 | Technical Specifications

项目 ITEM	规格 SIZE	备注 NOZE
面板尺寸 Panel Dimensions	2440×400/600×12/15 mm	可定制 Customizable
安装方向 Installation Direction	水平安装 Horizontal	专用连接系统 Dedicated connection system
系统厚度 System Thickness	面板厚+10mm 空腔 Panel +10mm cavity	含防水通风系统 Includes waterproof ventilation
连接方式 Connection Method	隐藏式干挂系统 Concealed dry-hanging system	专利铝合金挂件 Patent aluminum alloy brackets
接缝宽度 Joint Width	8-12 mm	可调节 Adjustable

系统设计与要求 | SYSTEM DESIGN & REQUIREMENTS

2.1 适用范围 | Application Scope

✅ 适用条件 | ✅ Suitable Conditions

建筑高度≤24 米 | Building height ≤24m
混凝土/砌体/轻钢结构 | Concrete/masonry/light steel structure
各类气候区域 | All climate zones
住宅/商业/公共建筑 | Residential/commercial/public buildings

✕ 不适用条件 | ✕ Unsuitable Conditions

高层建筑外墙 | High-rise building exterior walls
曲面墙体 | Curved wall surfaces
开放式幕墙 | Open cavity curtain walls
承重结构 | Load-bearing structures

2.2 基层要求 | Substrate Requirements

基层平整度 | Substrate Flatness

垂直偏差：≤3mm/2m | Vertical deviation: ≤3mm/2m

平整度：≤2mm/2m | Flatness: ≤2mm/2m

强度：≥C20 混凝土或等效 | Strength: ≥C20 concrete or equivalent
防水要求 | Waterproofing Requirements
必须设置防水层 | Waterproof layer required
透气性耐候屏障 | Breathable weather barrier
按规范设置排水系统 | Drainage system per code

安装前准备 | III. PRE-INSTALLATION PREPARATION

3.1 设计确认 | Design Confirmation

1.审核施工图纸 | Review construction drawings
2.确认板材排布方案 | Confirm panel layout scheme
3.计算材料用量 | Calculate material quantities
4.确定特殊节点做法 | Determine special detail methods
5.编制安装计划表 | Prepare installation schedule

3.2 材料检查 | Material Inspection

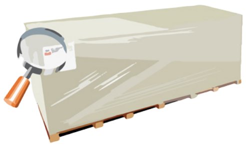
检查清单	Checklist
□ 板材数量、规格符合设计要	Panel quantity & specs match design
□ 颜色批次一致，无色差	Color batch consistent, no color variation
□ 表面无破损、划痕	Surface free of damage, scratches
□ 企口完整无缺陷	Tongue-and-groove complete, no defects
□ 连接件、紧固件齐全	Connectors, fasteners complete
□ 密封胶在有效期内	Sealant within validity period

HANDLING / STORAGE

1. Unloading of Goods

Customer to physically check that goods are in good order before starting to unload. This includes checking the following.

a. Stretch-wrap should be intact and seal not broken.



b. Goods not damaged, dented, chipped corners or broken.

c. Sheets not wet and dirty or with green patches of algae.

d. Count to ensure quantity, size and description tally with the DO.

e. If goods are required to be sent back to factory due to any of the aforesaid issues, customer should not sign on the DO. The lorry driver must take the goods back to GOLDEN POWER factory.

2. Storage of GP's FC Products

Customer are advised to have proper storage facilities like covered area and strong based, flat and level ground.

a. Do not store in open space where it is subject to rain.

Customer to ensure forklifts or any other ancillary vehicles do not knock into each other during storage.

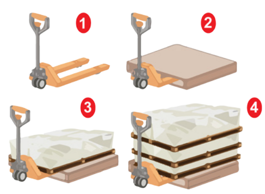
b. Stacking should not exceed 3-pallet height.

c. Use forklift with appropriate tonnage capacity for handling of goods.

d. Customers to engage experienced forklift drivers to do the job.

3. Loading onto truck for distribution

a. In the case of loose load, ensure proper handling of sheets during re-stacking.



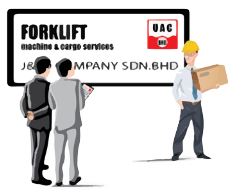
b. Ensure sufficient proper bracings and support during transit, e.g sufficient timber blocks as protective covers.

4. Preventive Measures

a. Educating customers' storehands, forklift drivers, lorry drivers, attendants and etc.

b. Regular dialogues and reminders to be given to customers on proper handling of goods at all time.

c. GOLDEN POWER sales personnel will visit customers' stores to spot check and ensure good practices are implemented.



5. Storage

Boards should be stacked flat on level surface with sufficient support such as on pallet / frame or on timber blocks as shown in diagram (i).

Do not stack boards with insufficient support as shown in diagram (ii).

To ensure optimum performances, store boards undercover and keep dry prior to fixing. Should the boards become wet, allow to dry before fixing is commenced.

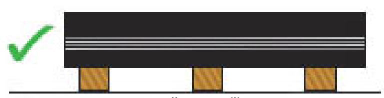


diagram (i)

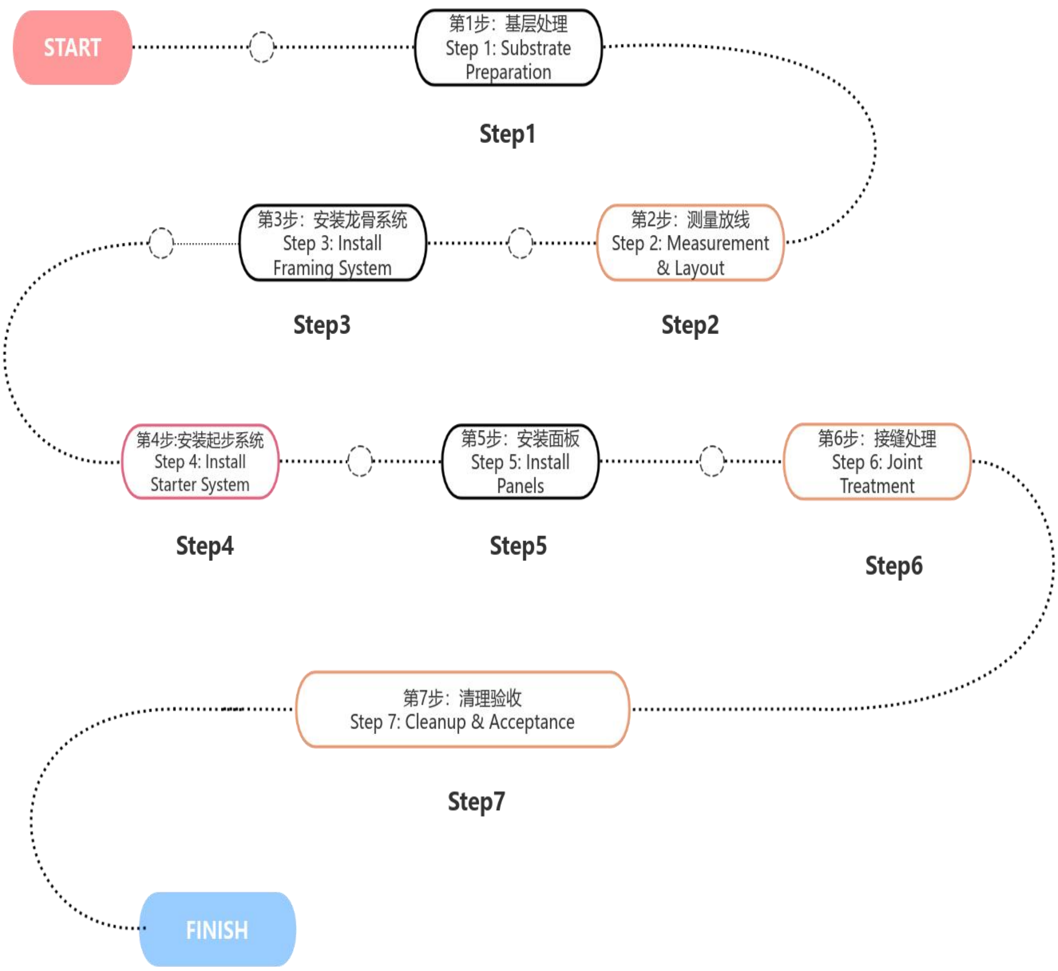
diagram (ii)

3.3 工具准备 | Tool Preparation

必备工具	Essential Tools
激光水平仪	Laser level
电钻及配套钻头	Electric drill with bits
纤维水泥板专用切割机	Fiber cement panel cutter
测量工具（卷尺、水平尺）	Measuring tools (tape, level)
安装工具组（螺丝刀、扳手）	Installation tool set (screwdrivers, wrenches)
安全防护装备	Safety protection equipment

安装工艺流程 |

IV. INSTALLATION PROCESS FLOW



详细安装步骤 | V. DETAILED INSTALLATION STEPS

5.1 步骤一：测量放线 | Step 1: Measurement & Layout

操作要点 | Key Points:

1.使用激光水平仪建立基准线
Use laser level to establish datum lines
2.弹出龙骨中心线（间距≤600mm）
Mark framing centerlines (spacing ≤600mm)
3.标出面板分格线
Mark panel grid lines
4.复查尺寸准确性
Re-check dimensional accuracy

5.2 步骤二：安装龙骨系统 | Step 2: Install Framing System

竖向龙骨安装 | Vertical Framing Installation

材料：热镀锌钢龙骨 | Material: Hot-dip galvanized steel
固定：化学锚栓或膨胀螺栓 | Fixing: Chemical anchors or expansion bolts
间距：中心距≤600mm | Spacing: Center-to-center ≤600mm
检查：垂直度≤2mm/2m | Check: Verticality ≤2mm/2m

横向挂件安装 | Horizontal Bracket Installation
材料：专用铝合金挂件 | Material: Special aluminum alloy brackets
固定：不锈钢螺丝 | Fixing: Stainless steel screws
间距：按面板宽度设置 | Spacing: Set per panel width
检查：水平度≤1.5mm/2m | Check: Levelness ≤1.5mm/2m

5.3 步骤三：安装起步系统 | Step 3: Install Starter System

起步条安装要求 | Starter Track Installation Requirements

位置：距完成地面≥150mm

Position: ≥150mm above finished floor

高度：精确调整至水平

Height: Precisely adjusted to level

固定：间距≤400mm

Fixing: Spacing ≤400mm

防水：检查防水层连续性

Waterproofing: Check continuity of waterproof layer

5.4 步骤四：安装面板 | Step 4: Install Panels

安装顺序 | Installation Sequence

第 1 行：从左下角开始

Row 1: Start from bottom left corner

第 2 行：错缝安装（可选）

Row 2: Staggered joints (optional)

后续行：自下而上逐行安装

Subsequent rows: Install row by row bottom-up

收口行：精确测量切割

Finishing row: Precisely measure and cut

安装要点 | Installation Key Points

1.企口对准挂件，轻轻敲入
Align tongue with bracket, gently tap in
2.使用专用螺钉固定
Fix with dedicated screws
3.每安装 3 块板检查一次平整度
Check flatness every 3 panels
4.及时清理板面灰尘
Clean panel surface dust promptly

5.5 步骤五：接缝处理 | Step 5: Joint Treatment

密封胶施工流程 | Sealant Application Process

1. 清洁接缝 → Clean joints
2. 填充背衬条 → Fill with backer rod
3. 贴美纹纸 → Apply masking tape
4. 打密封胶 → Apply sealant
5. 刮平修整 → Smooth and finish
6. 撕除美纹纸 → Remove masking tape

技术要求 | Technical Requirements

密封胶：ASTM C920 Class 35 或同级 | Sealant: ASTM C920 Class 35 or equivalent
胶缝宽度：8-12mm | Joint width: 8-12mm
胶缝深度：≥5mm | Joint depth: ≥5mm
覆盖板边：1-3mm | Overlap panel edge: 1-3mm

质量验收标准 | QUALITY ACCEPTANCE STANDARDS

6.1 安装允许偏差 | Allowable Installation Tolerances

检查项目 Inspection Item	允许偏差 Allowable Deviation	检查方法 Inspection Method	检查频率 Inspection Frequency
墙面平整度 Wall Flatness	≤2.5mm	2m 靠尺 2m straightedge	每 10 ㎡一处 One per 10 ㎡
垂直度 Verticality	≤3mm/层高 ≤3mm/floor height	激光垂直仪 Laser plumb	每墙面不少于 3 处 ≥3 points per wall
接缝直线度 Joint Straightness	≤2.5mm	5m 拉线 5m tension line	每 20m 检查一处 One per 20m
缝宽一致性 Joint Width Consistency	±1mm	卡尺 Caliper	随机抽查 10 处 Random 10 points
相邻板高差 Adjacent Panel Height Diff.	≤1.0mm	深度尺 Depth gauge	每处接缝检查 Check each joint

6.2 性能验收 | Performance Acceptance

水密性测试 | Water Tightness Test

方法：淋水试验 | Method: Water spray test
标准：持续淋水 15 分钟无渗漏 | Standard: No leakage after 15min continuous spray
压力：喷嘴压力 0.2-0.3MPa | Pressure: Nozzle pressure 0.2-0.3MPa
外观验收 | Appearance Acceptance
表面清洁无污染 | Surface clean, unpolluted
颜色均匀无色差 | Color uniform, no variation
接缝平直美观 | Joints straight, aesthetically pleasing
无可见破损缺陷 | No visible damage or defects

安全与维护 | VII. SAFETY & MAINTENANCE

7.1 安全注意事项 | Safety Precautions

高风险作业警示 | High-Risk Operation Warnings

1. 高空作业必须系安全带

   Fall protection mandatory for work at height

2. 切割作业佩戴防护装备

   Wear PPE during cutting operations

3. 材料搬运使用机械辅助

   Use mechanical aids for material handling

4. 现场设置安全警戒区

   Establish safety 警戒 zones on site

5. 恶劣天气停止室外作业

   Stop outdoor work in 恶劣 weather

7.2 日常维护 | Routine Maintenance

清洁建议 | Cleaning Recommendations

频率：每年 1-2 次 | Frequency: 1-2 times per year
方法：软布+中性清洁剂 | Method: Soft cloth + neutral cleaner
禁忌：高压水枪直接冲洗 | Prohibition: Direct high-pressure washing
检查：同时检查密封胶状态 | Inspection: Check sealant condition simultaneously
定期检查项目 | Periodic Inspection Items

季度检查 Quarterly:

□ 连接件紧固状态 Connector tightness

□ 密封胶完整性 Sealant integrity

□ 表面污染情况 Surface contamination

年度检查 Annual:

□ 全面外观检查 Comprehensive 外观 inspection

□ 防水系统检查 Waterproofing system check

□ 结构性检查 Structural inspection

故障排除 | VIII. TROUBLESHOOTING

8.1 常见问题及处理 | Common Issues & Solutions

问题现象 Problem Phenomenon	可能原因 Possible Cause	解决方案 Solution
板缝渗水 Water leakage at joints	密封胶开裂或缺失 Sealant cracked or missing	清除旧胶，重新打胶 Remove old sealant, reapply
面板松动 Loose panels	连接件松动或失效 Loose or failed connectors	检查紧固，必要时更换 Check fastening, replace if needed
表面污染 Surface staining	污染物渗透 Contaminant penetration	专用清洁剂清洗 Clean with 专用 cleaner
色差明显 Visible color variation	不同批次混用 Mixed batches	更换统一批次 Replace with uniform batch

8.2 面板更换流程 | Panel Replacement Procedure

1. 确定损坏面板位置
   Locate damaged panel
2. 移除相邻面板固定件
   Remove adjacent panel fasteners
3. 取出损坏面板
   Extract damaged panel
4. 安装新面板（预留膨胀间隙）
   Install new panel (allow expansion gap)
5. 恢复接缝密封
   Restore joint sealing
6. 补漆处理（如需）

   Touch-up painting (if needed)

技术参数表 | IX. TECHNICAL DATA SHEET

9.1 物理性能 | Physical Properties

性能指标 Performance Indicators	测试值 Test Values	测试标准 Test Standards
密度 Density	<1.5 g/cm³	GB/T 7019
抗折强度 Flexural Strength	≥12 MPa	GB/T 7019
吸水率 Water Absorption	≤18%	GB/T 7019
湿涨率 Wet Expansion	≤0.15%	JC/T 564.1
抗冻性 Frost Resistance	25 次循环无破坏 25 cycles no damage	GB/T 7019
防火等级 Fire Rating	A 级（不燃） Class A (Non-combustible)	GB 8624

9.2 耐候性能 | Weather Resistance

测试项目 Test Items	结果 Results	标准 Standards
人工加速老化 Artificial Accelerated Aging	2000 小时无变色 2000hrs no discoloration	GB/T 1865
耐盐雾 Salt Spray Resistance	1000 小时无腐蚀 1000hrs no corrosion	GB/T 1771
耐湿热 Damp Heat Resistance	1000 小时无变化 1000hrs no change	GB/T 1740
抗紫外线 UV Resistance	等级 5（最优） Grade 5 (Best)	ISO 4892-3

X. 附录 | X. APPENDIX

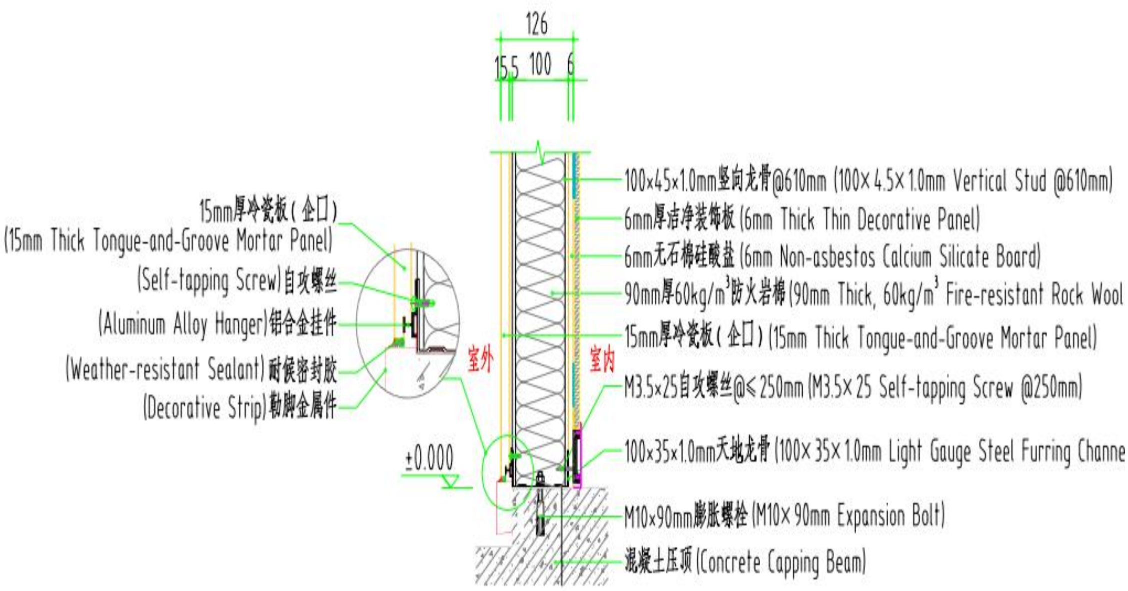
10.1 材料计算表示例 | Material Calculation Sheet

墙面面积：100 ㎡示例 | Wall Area: 100 ㎡ Example

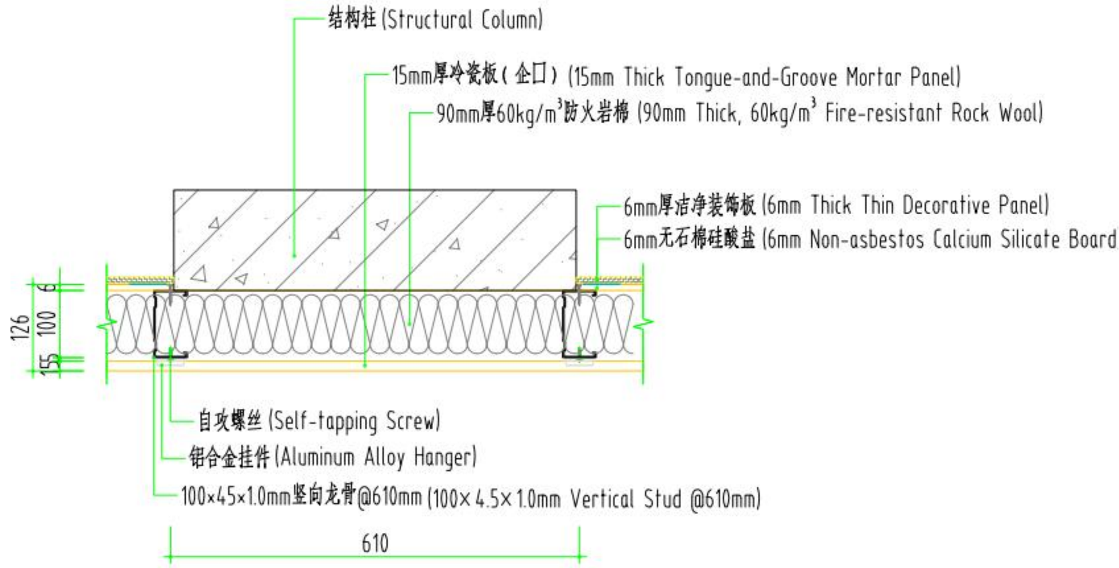
材料 Material	规格 Spec	单位 Unit	数量 QTY	备注 Note
企口板 T&G Panel	2440×600×15mm	片 pc	70PCS	含 5%损耗 Including 5%

材料 Material	规格 Spec	单位 Unit	数量 QTY	备注 Note
				waste
竖向龙骨 Vertical Frame	60×40×1.5mm	米 m	180	热镀锌 Hot-dip galvanized
铝合金挂件 Al Bracket	专用型 Special	个 pc	280	含备用 Including spares
耐候密封胶 Weather Sealant	590ml/支 590ml/tube	支 tube	12	ASTM C920 Class 35
泡沫背衬条 Foam Backer Rod	Ø10mm	米 m	110	闭孔 Closed-cell
专用螺丝 Special Screws	ST4.2×25mm	个 pc	420	不锈钢 Stainless steel

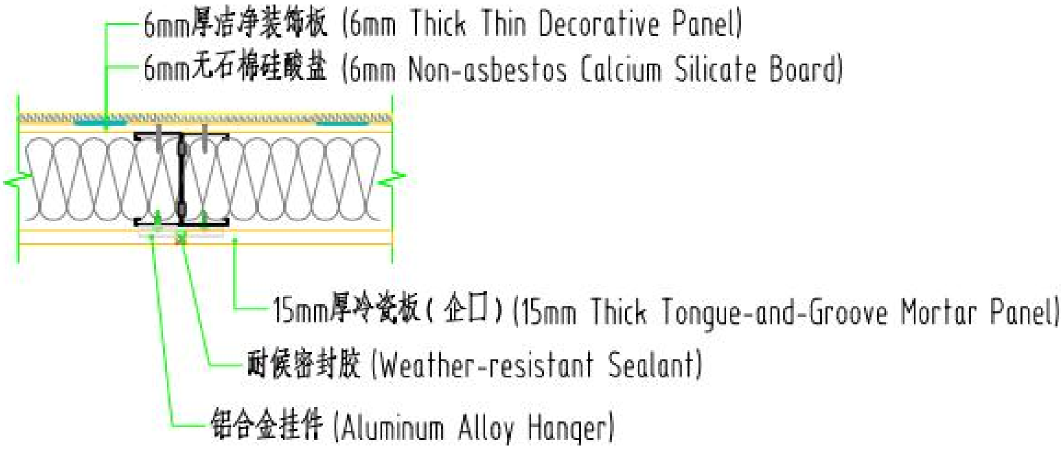
XI. 节点详图（附录）| XI. DETAIL DRAWINGS (APPENDIX)



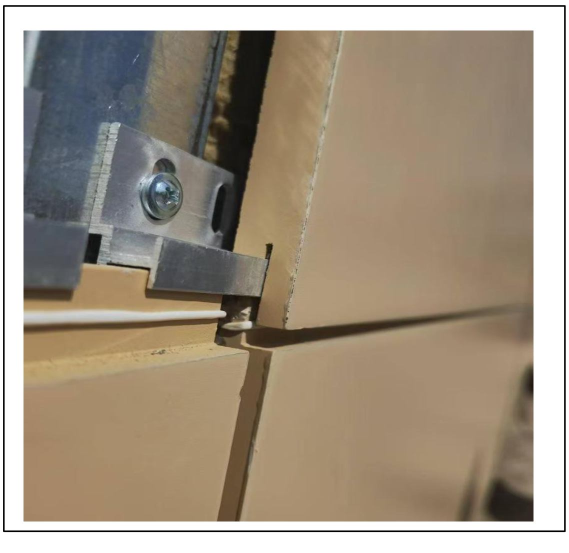
13 IE-03 装饰一体外墙墙脚做法大样 1:10
Detail of Exterior Wall with Integrated Cladding

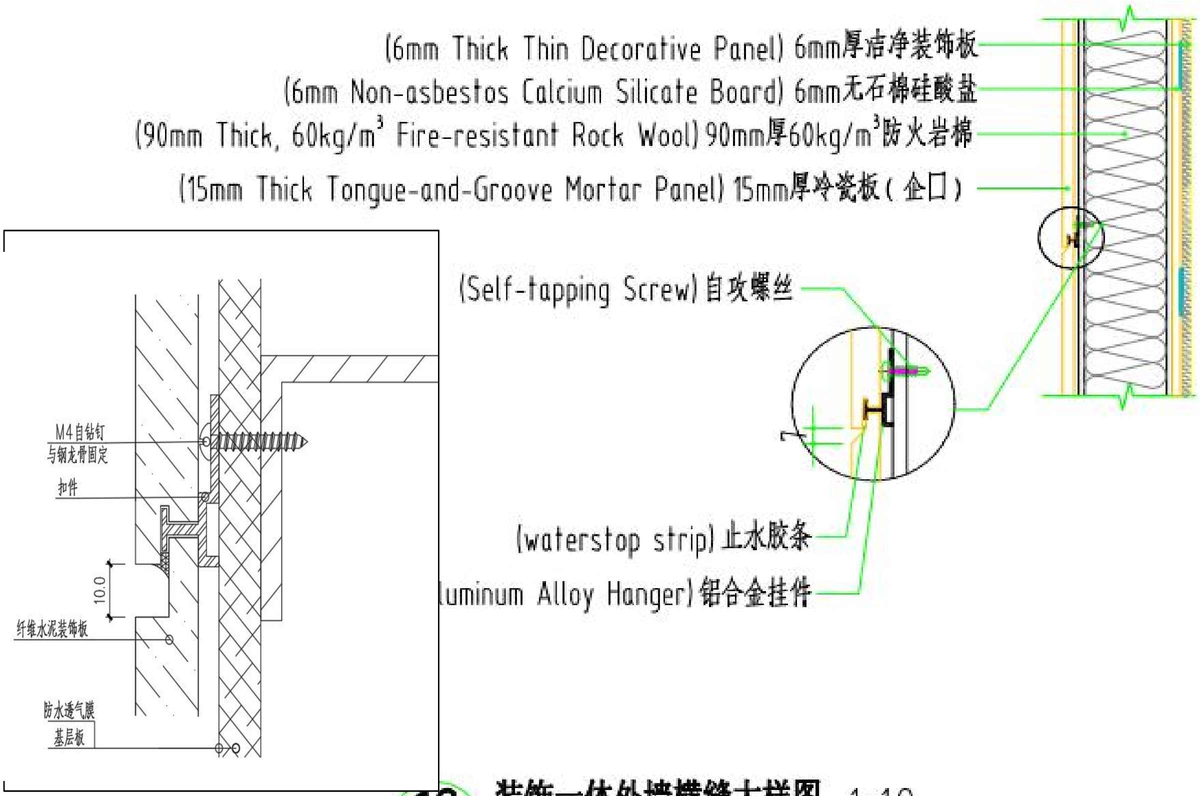


14 装饰一体外墙竖龙骨排布图 1:10
IE-03
Layout of Exterior Wall with Integrated Cladding Vertical Studs

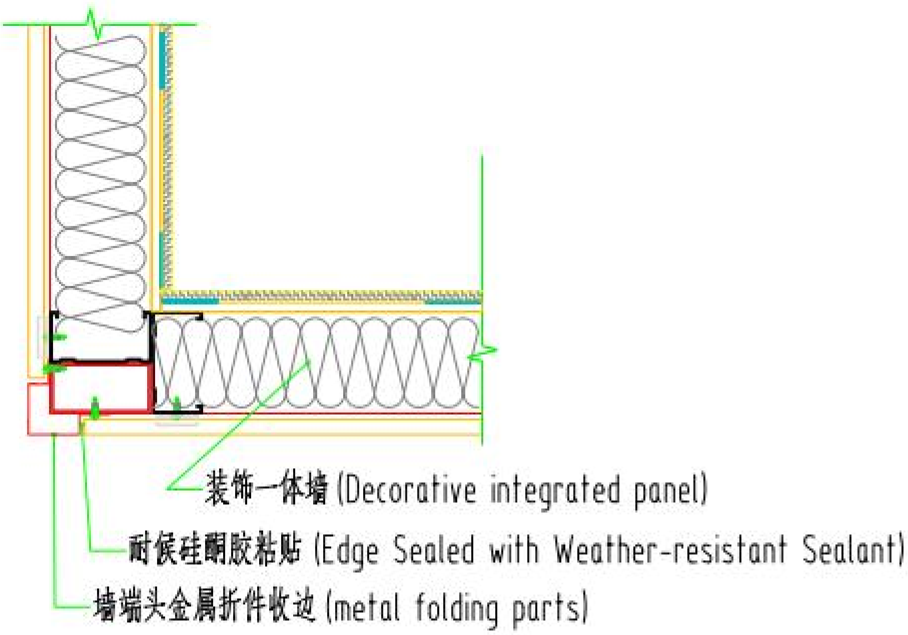


15 装饰一体外墙竖龙骨排布图 1:10
IE-03
Layout of Exterior Wall with Integrated Cladding Vertical Studs





16 装饰一体外墙横缝大样图 1:10
IE-03 Detail of Exterior Wall with Integrated Cladding Horizontal Rail



17 装饰一体外墙端头收边大样图 1:10
IE-03 Edge Detail of Exterior Wall with Integrated Cladding Horizontal Rail


GPETTW2 (11)


GPETTW2 (12)


GPETTW2 (13)


GPETTL1


GPETTW2 (0)


GPETTL2


GPETTW2 (8)


GPETTL3


GPETTW2 (9)


GPETTW2 (7)


GPETTW2 (6)


GPETTW2 (5)


GPETTW2 (4)


GPETTW2 (3)


GPETTW2 (3)


GPETTW2 (2)


GPETTC1


GPETTC2


GPETTZW1


GPETTZW2

GOLDEN POWER
HUMAN HABITAT

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