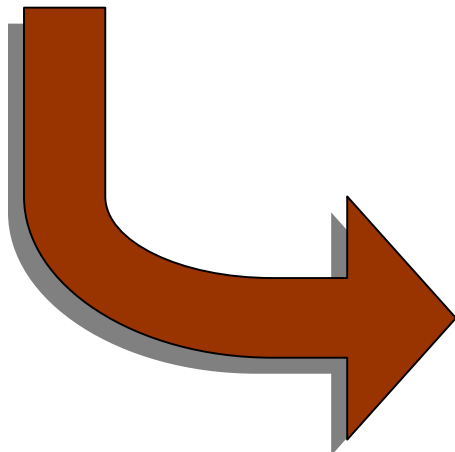


THE



"Unitized Advantage"



The BCi "Unitized" Advantage

Packaging & Delivery

1. Identification

Prior to packaging, each panel or item is marked with a unique alphanumeric identifier corresponding to a unique location in the completed project. This facilitates tracking of frames, product & glass types, fabrication drawings, parts, inspection records, etc.

2. Packaging Sequence

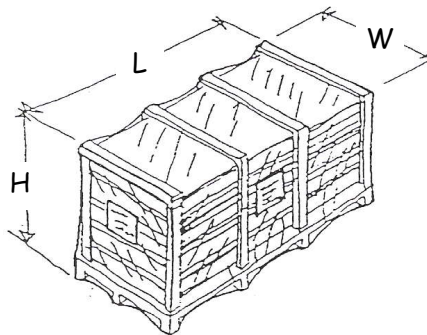
Panels are carefully packaged according to the agreed upon installation sequence.

3. Packaging

Completed panels are set on a pallet with the exterior surface facing up. This helps keep the interior surface of the panels clean, dry, and damage free to speed installation. Blue Max protectant is applied to the exterior surface, **standard**. Each panel is isolated from adjacent panels with polystyrene foam strips, then packaged in wooden crates to prevent free movement and protect against damage during loading, shipping, and unloading. Each pallet contains 4-5 panels to reach a total gross weight between 2,200 & 3,300 lbs. Pallets are designed for easy lifting by crane or forklift. Finally, the crates are completely wrapped with plastic sheathing and vacuum packed for further protection against damage and weather.

All panels and pallets are also identified with the panel numbers, pallet number, and floor level.

Every effort is made to standardize the dimensions of each crate. Specific project characteristics will determine the degree of standardization. This reduces complications during loading, shipping, unloading, and installation. A completely packaged pallet is shown below (avg. dim. 14'-0" L x 4'-6"W x 4'-6"H):



4. Packing List & Shipping Documents

A packing list & complete shipping documents accompany each truckload or pallet and Confirmation of Receivership is required. The packing list reflects the project and load sequencing described earlier in this document. Records of damaged or missing product are kept and appropriate actions are taken to resolve and prevent any reoccurrence.

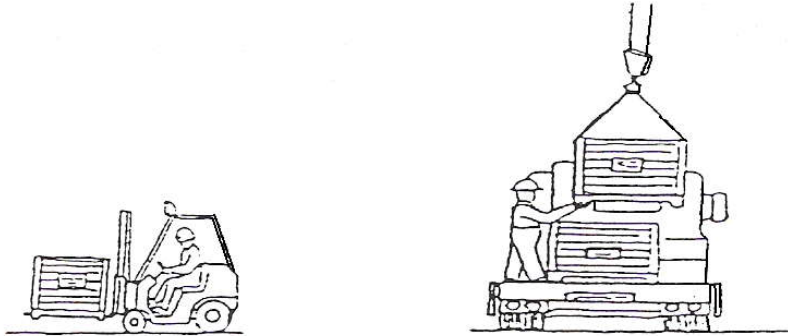
5. Loading & Transportation

Depending on panel sizes, loading of pallets is performed using a forklift or crane. Instructions will include proper strapping positions and other lifting recommendations. Pallets are transported to the project site on 6 ton "rag top" or flat bed trailers, depending on traffic conditions and local restrictions. Project site characteristics and conditions will also dictate the transportation methods. These factors include, but are not limited to: availability of on-site storage, site accessibility, and available crane or hoist time.

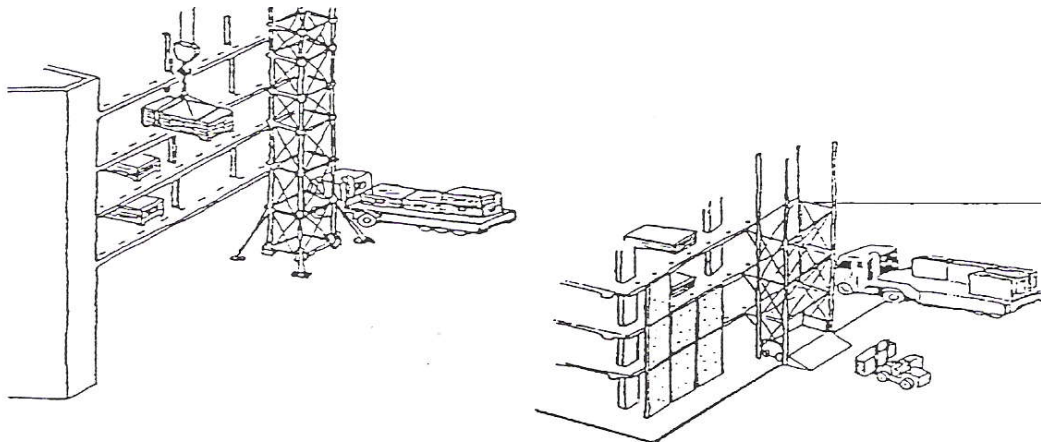


Site Logistics (unloading, storage, and moving)

1. **Arrival of pallets on site** (avg. dim. 14'-0"L x 4'-6"W x 4'-6"H)
2. **Unloading from trucks:**
 - a. Using resident tower crane (pallet width > 6'-0")
 - b. Using forklift and/or transpallet (pallet width < 6'-0")



3. **Lifting pallets to load out or storage floor(s):**
 - a. Using the tower crane from truck to loading platform/dock or distributed directly to installed floor
 - b. With goods hoist using forklift and/or transpallet for ground movement.

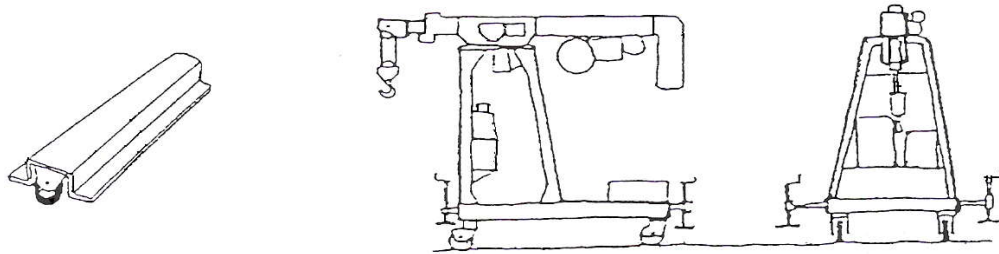


* Pallets are unloaded onto flat bed trolley to facilitate "on floor" distribution. Therefore, unloading on ground stocking areas and further lifting are avoided.

Site Logistics (cont'd)

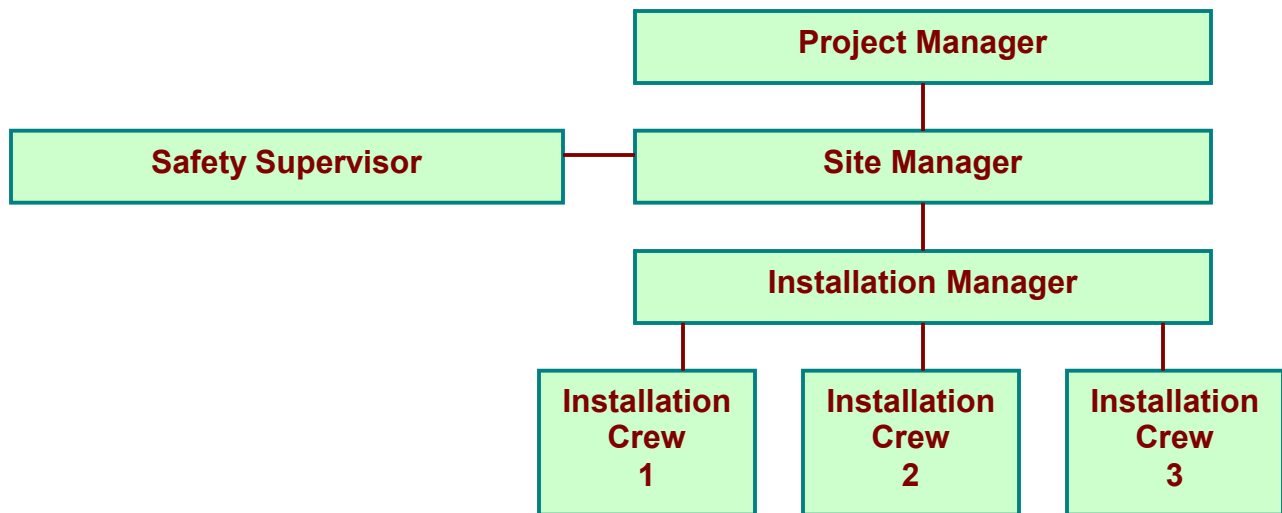
4. Floor distribution & storage

Again, pallets are identified to facilitate floor distribution & storage. Distribution to installation area is completed using flat bed trolleys & portable mechanical "mini" hoist designed to operate in tight spaces.



Site Organization (project responsibilities, safety, equipment & machinery)

1. Organizational Flowchart



2. Project Manager Project Responsibilities

- a. Become familiar with contract documents and BCI's executed subcontract
- b. Manage all change order requests, change orders, and pay applications
- c. Supervise ongoing management of project
- d. Supervise SM responsibilities
- e. Act as BCI's representative at all required project meetings

Site Organization (cont'd)

- 3. Site Manager Project Responsibilities** (PM & SM may be same person, depending on size and complexity of the project)
 - a. Become familiar with drawings and specifications
 - b. Report to PM & Safety Mgr
 - c. Supervise day to day progress of work
 - d. Supervise quality of installed work
 - e. Ensure work adheres to the agreed upon contract provisions
 - f. Interface with factory personnel regarding material delivery and manage material flow & logistics
 - g. Act as BCi's day to day representative for interaction with prime contractor, Owner, architect, building officials & related subcontractors

- 4. Installation Manager Project Responsibilities**
 - a. Act as a "working" manager
 - b. Supervise specific tasks completed by installation crews
 - c. Report to PM & SM

- 5. Safety Program Responsibilities**
 - a. Project Manager / Site Manager
 - i. Name site safety supervisor to oversee day to day project site safety & welfare
 - ii. Ensure adherence to relevant Codes of Practice
 - iii. During planning stages, determine potential site hazards, fire precautions, delegation of responsibilities, required & necessary protective gear, and other necessary facilities & equipment
 - iv. Investigate potential hazards and dangerous environments on project site and report to prime contractor to minimize risk
 - v. Encourage active participation in safety program from all site personnel
 - b. Safety Supervisor
 - i. Organize the project site to ensure safe working environment for site personnel and the public
 - ii. Organize and hold periodic safety meetings for installation crews
 - iii. Maintain all plant, machinery, and equipment in proper working order
 - iv. Maintain clean hazard free project site
 - v. Manage inventory of all safety equipment and protective clothing & eyewear
 - vi. Ensure prime contractor provides adequate and accessible First Aid facilities
 - vii. Fully document and report all safety related incidents

5. Safety Program Responsibilities (cont'd)

- c. Installation Crew Personnel
 - i. Become familiar with obligations under BCi's health and safety procedures
 - ii. Wear hard hats and protective eyewear on project site at all times
 - iii. Avoid taking unnecessary risks at all times
 - iv. Learn, observe and use all sensible safety precautions
 - v. Report defects in any plant, machinery, and equipment to the Installation Manager
 - vi. Use safety equipment in required areas (i.e. safety harness in close proximity to slab edges)
 - vii. Provide suggestions for safety improvement to Installation Manager & Safety Supervisor
 - viii. Report hazardous environments and situations immediately to any available (BCi or prime contractor) supervisory personnel
 - ix. Erect mobile scaffolding according to suppliers guidelines, including all necessary handrails, toe boards, etc.
 - x. Working beyond any safety rails at the perimeters of the building without the proper use & anchorage of a safety harness is strictly prohibited
 - xi. Wear all provided protective clothing & shoes. Avoid any loose or dangling material, jewelry, etc that could become entangled in any equipment or machinery
 - xii. **DRUGS AND ALCOHOL ARE STRICTLY PROHIBITED ON ANY PROJECT SITE**

6. Site Equipment & Machinery

- tower crane (by others)
- goods hoist (by others)
- fork lift
- transpallet
- flat bed trolley
- loading platform / dock
- mini mechanical marble hoist
- monorail pulley hoist
- suction cups
- straps
- container – site cabin
- electric tools – drills, cordless drivers
- customary hand tools
- torque keys
- mechanical keys
- hard hats, safety harnesses, railings, eye protection
- mobile scaffold

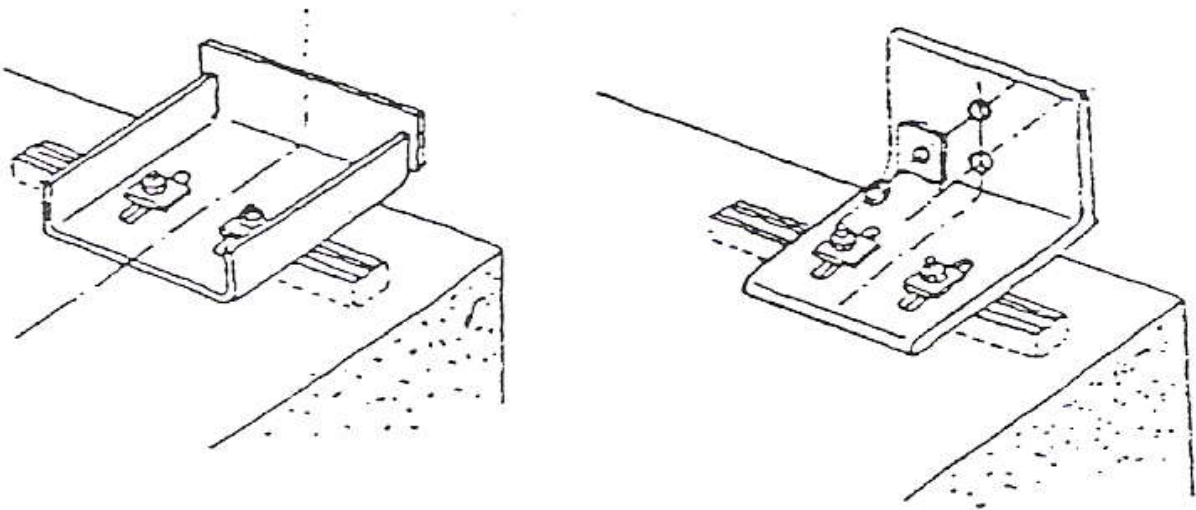
Typical Unitized Installation

1. Slab edge anchor point identification

- a. Concrete cast-in-place channel insert is inspected in accordance with gridline. Excess polystyrene foam is removed and channel is completely cleaned out. Adjacent concrete slab is checked for level.
- b. Concrete slab is post drilled to position anchors / chemical bolts, in accordance with gridline.

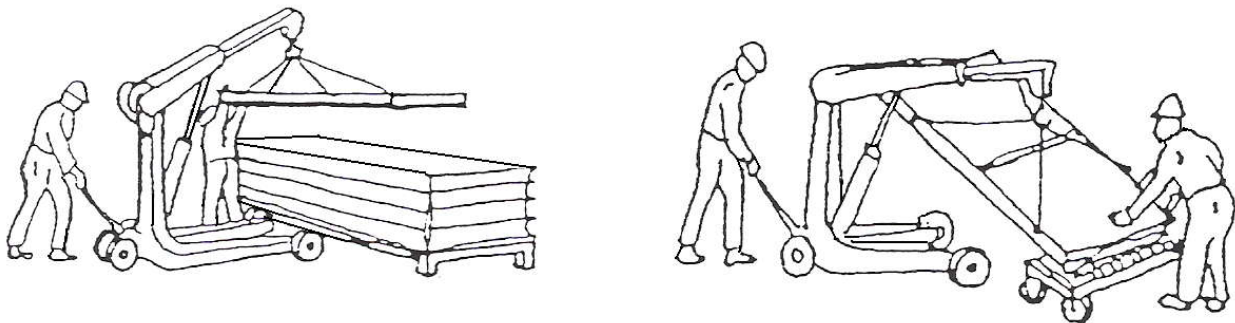
2. Curtain wall bracket attachment

Brackets are positioned over the channels. T-bolts or anchor bolts are inserted into the bracket and shimmed, leveled as needed, then firmly attached by tightening bolts.



3. Pallet/panel unpacking

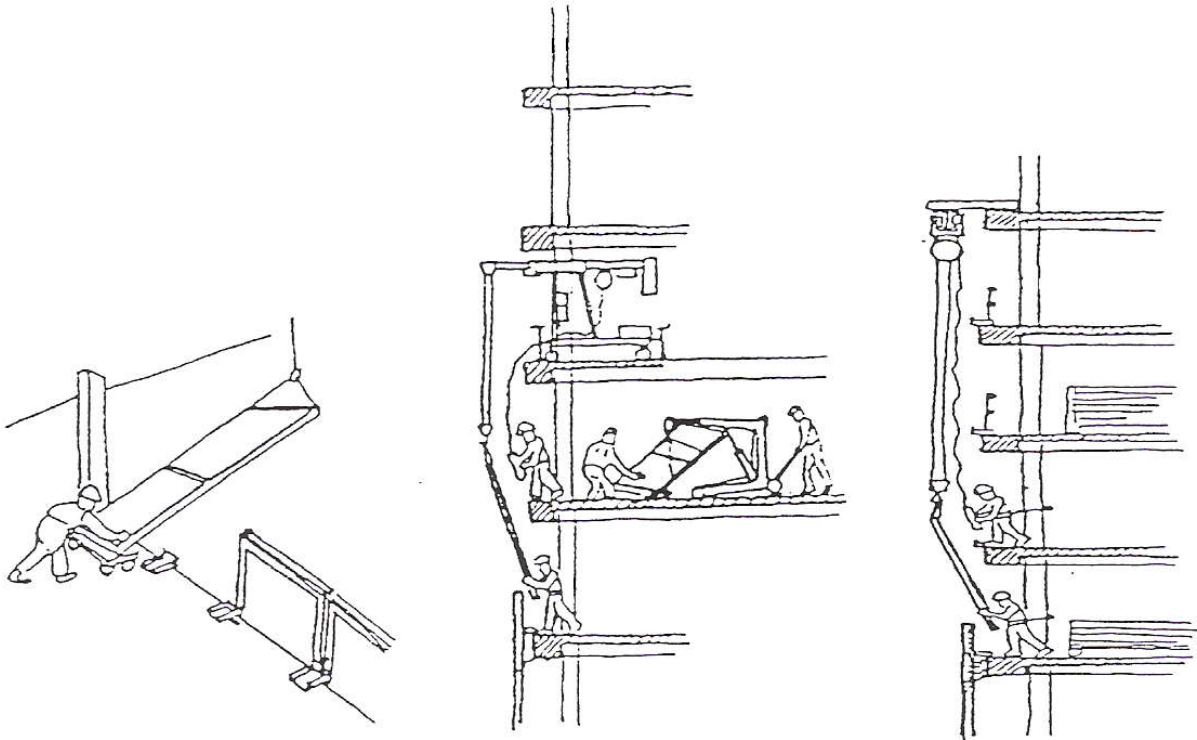
Each panel is lifted from the pallet with the mini hoist and suction cups or straps. Then the panel is placed on the flatbed trolley and rolled to the slab edge. Again, the panels are sequentially packed and marked per unitized run or drop.



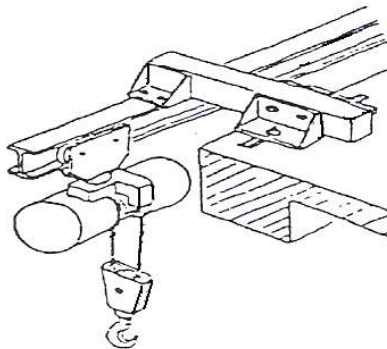
Typical Unitized Installation (cont'd)

4. Panel lifting

Panels are lifted using either an internal portable hoist or an external pulley hoist. The pulley hoist is anchored to a curtain wall anchor channel and runs along a continuous "I" beam rail (see detail below). The hoists are located 2 to 4 floors above the installation area.



Detail of Pulley Hoist



Typical Unitized Installation (cont'd)

5. Panel positioning

Standard installation crew = three (3) men on installation floor, one (1) man on the upper floor operating the hoist, and two (2) men one floor below positioning the panel vertically and applying silicone sealant at the transom joint.



**** Please note that design, production, shipment and storage of pallets and panels on each floor are managed under the principle of "just in time" delivery. Thus avoiding increased handling and reducing the necessity for onsite storage area. Material is shipped to the site per the agreed upon installation sequence.**

