

I. Construction Innovation Forum • NOVA Award Nomination

9406

Instructions

Step 1

Enter a Descriptive Name for the Process/Method/Technique you are nominating on line A of this page.

Step 2

Complete this page,

"I. Construction Innovation Forum • NOVA Award Nomination"

- Be sure to provide original signatures in Section B and E on this page. Your nomination cannot be reviewed without them.
- If you need additional space for names and addresses you may attach additional pages for names and address information. You may attach extra pages only for sheet I.

Step 3

"II - Innovation Description" — attach one (one only) 8-1/2" X 11" page that gives a succinct written description of the innovation. Put the name of the innovation at top of page. Tell us what you think is innovative about this. You should include:

- What the innovation is
- Where and when it originated, has been used, and is expected to be used in the future
- Why it is innovative
- If the nomination is for an innovative project, specifically identify its innovations.
- What it changed or replaced

Please type, with 1" margins, 10 characters per inch, 6 lines per inch.

Step 4

"III - Innovation Illustration" — attach one (one only) 8 1/2" X 11" page that contains one or more photographs, drawings, tables, graphs, clauses, etc., that visually describe the innovation. Do not submit more than one page of visuals. The jurors will see only one sheet for review. Put the name of the innovation at top of page.

Other

You must submit 12 (twelve) sets of sheets I, II and III (a total of 36 pages)

Nominations are due September 15 mailed or delivered to:

The Construction Innovation Forum, 1000 Campus Drive, Suite 100, Ann Arbor, MI, USA 48104-6792, Phone: 313-995-1855, Fax: 313-995-5002

A. Name of Innovation: Preston Folding Scaffold

B. Person(s) and/or Organization(s) Primarily Responsible for the Innovation (Those to whom NOVA Award should be presented.)

Name: John Preston

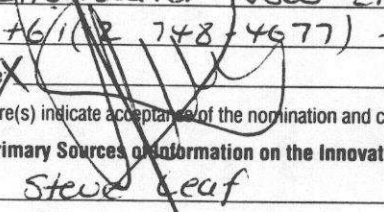
Title: Managing Director

Affiliation: Preston Erection P/L

Address: 196 Silverwater Rd

Silverwater NSW 2141, AUSTRALIA

Phone: +61(0)2 748-4677 - international

Signature: 

Name: Markus Preston

Title: Technical Supervisor

(Signature(s) indicate acceptance of the nomination and consent to have CIF research and make presentations on the innovation for the purpose of jurying and publicizing awards.)

C. Other Primary Sources of Information on the Innovation: (in addition to the persons nominated above.)

Name: Steve Leaf

Title: Manager

Affiliation: Preston Erection P/L

Address: 196 Silverwater Rd

Silverwater NSW 2141, AUSTRALIA

Phone: +61(-2 748-4677) - international

D. Independent Reference(s) familiar with the use of the Innovation

Name: Peter Hart

Title: Chief Engineer

Affiliation: Delta Demolitions

Address: 92 Railway St

Altona VIC 3018, AUSTRALIA

Phone: +61(-3 398-5809) - international

E. Person(s) making nomination:

Name: David Bernstein

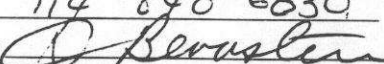
Title: Managing Director

Affiliation: Agent

Address: 16681 Island, Suite 4

Huntington Beach, CA 92649

Phone: 714 840 6830

Signature: 

(Signature(s) indicate familiarity with the the innovation and signify that information contained in the nomination is correct to the best of one's knowledge.)

INNOVATION DESCRIPTION

Preston Folding Scaffold

What is the innovation?:-

The Preston Folding Scaffold (PFS) is a revolutionary scaffolding system which is ten times faster than conventional scaffolds and is the safest, strongest and most versatile scaffolding to date.

Why is it innovative?:-

The innovation comes from the folding action where the scaffolding reduces to a twelfth of its expanded size and is ten times faster to erect and dismantle and provides a safe environment for the erector, the worker and the public.

It instantly provides a full working deck every six foot, hand rails inside and outside, fully meshed external face of the scaffolding to stop any debris, tools or workers from falling out and includes stair access wherever required.

What is changed or replaced:-

The Preston Folding Scaffold will replace at least 50% of conventional scaffolding especially in high-rise buildings where large volumes of scaffolding will be used.

As the scaffolding is crane erected and every building site today has a site crane or mobile crane, the Preston Folding Scaffold can be utilised.

It has been extensively used within the Construction Industry since 1987 in Australia and has been highly acclaimed by builders to save time, money and there has never been an accident to date during the life time of the scaffold which makes it a very safe product.

It is now also manufactured now Japan with great success and soon in Europe.

Where and When it originated:-

The PFS originated in Australia on or about 1985 when the industry was experiencing problems with cost of scaffolding as many bits and pieces were used in the construction of a scaffold.

Our Company which developed the PFS had mobile cranes and used those cranes to lift conventional scaffolds onto building sites and at times erected conventional scaffolding on the ground to be lifted in situ.

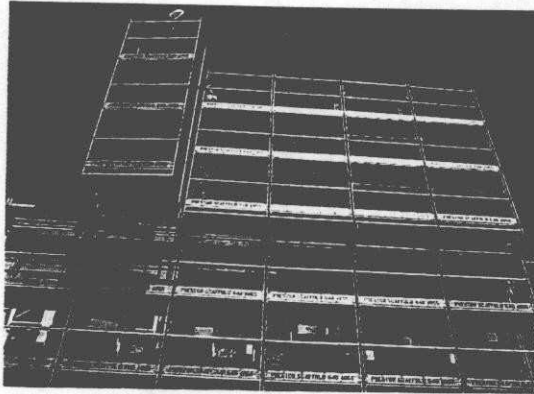
This created the idea of having a large module and collapsible scaffold unit to be erected by a crane. From there on the development of the PFS became a major success.

We expect that the PFS will be used throughout the world by all construction companies as all construction sites use a crane and due to its speed, safety and cost saving there is no other alternative.

PRESTON

FOLDING SCAFFOLD

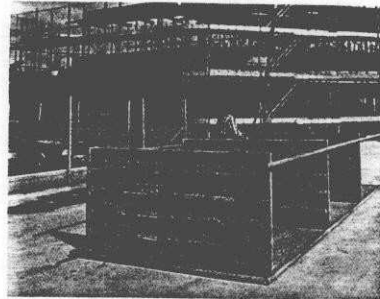
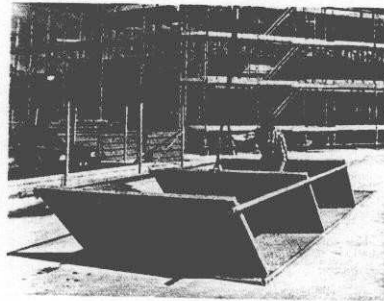
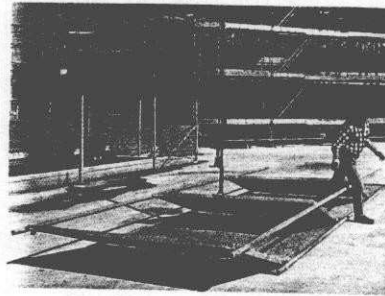
The patented Preston Scaffold is a heavy duty high rise scaffold with a flexibility that will fit almost any application. The design is simple which requires almost no maintenance. It is easy to transport, erect, dismantle and store.



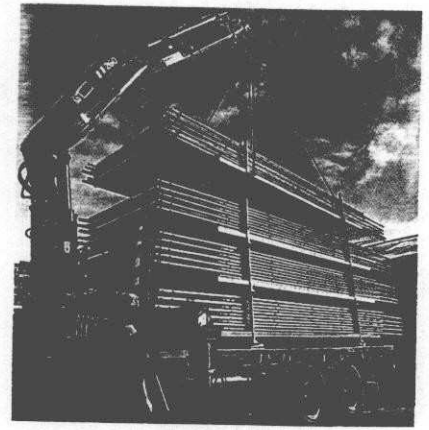
Typical erection speed approximately 900m² (9864 sq ft) per day.



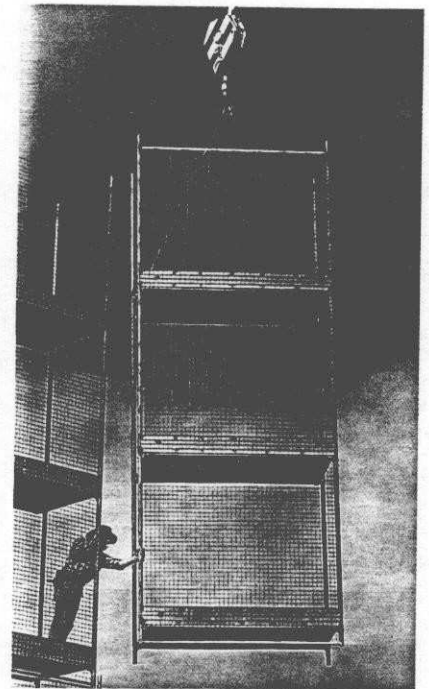
Easy Access to all levels with superior safety standards.



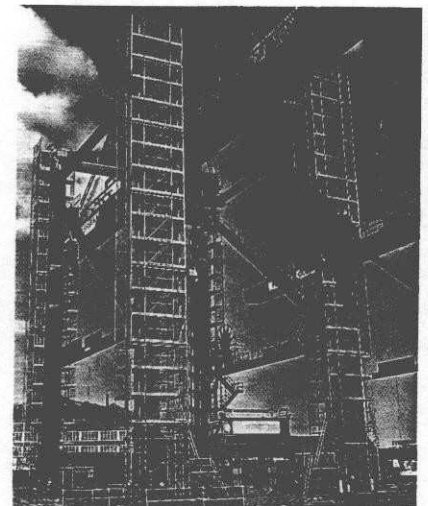
The PRESTON SCAFFOLD system is fabricated with heavy duty galvanised steel and factory fitted with non slip steel working decks, handrails and kick boards at every 2.050 metres (6'7") in height. Stair access is an integral part of the scaffold and ensures access to all levels of the scaffold. The decks provide a solid working surface from the very first unit's installation and do away with arduous manual assembly at perilous heights. The dangerous and expensive need for repositioning decks and other components during different stages of construction is also eliminated. Once erected the scaffold is a complete structure requiring no further alterations and maintenance. Further safety is ensured by a wall of steel mesh welded to the outer face of each scaffold unit minimizing accidents for the erector, the workers on the scaffold and the public below. The above safety aspects and many more have received acclaim by all users including large construction companies and public authorities.



20 Folded Scaffold units can be transported on one truck. 283m² (3045 sq ft) of face scaffold.



Typical scaffold module 2.3m (7'6") long x 6.150m (20'2") high x 1.12m (3'8") wide. Face area 14.14m² (152.25 sq.ft)



AWARD MANAGER'S SUMMARY

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Nomination 9406

PRESTON FOLDING SCAFFOLD

The Innovation

The Preston Folding Scaffold is a pre-assembled, steel scaffolding system composed of modular units that are folded down flat for transportation to the construction site on a flat-bed truck. Each folded unit is 7' 6" in width, 20' 2" in length, and 4" high. As many as 20 units form a truck load.

At the construction site, each panel is unfolded to make a scaffold unit three stories high. This expanded unit forms a scaffold 7' 6" wide, 20' 2" in height, and 3' 8" in depth. Each unit has three non-slip steel work platforms, steel kick boards, handrails that can be installed on either the inside or outside, and a welded steel safety mesh on the outside.

The expanded unit is raised by crane and set into position in the scaffold structure. The unit has sockets on the bottom of each leg that fit over projecting stubs on the top of the unit below. Once seated, a bolt through each socket and stub pins the two units together. The legs of adjacent units are fastened together with bolted clamps and the horizontal space between the adjacent platforms is filled with hinged plates on one unit that are bolted down on the neighboring unit.

There are extension plates that can be put into place between the scaffold floor and the building structure. This reduces the amount of openings. Other specialized units, such as stairways, ladder ways, elevators, etc. are integrated into the system.

The PFS is easier and faster to erect than conventional scaffold since the system uses fewer parts. Expanded units may be moved from one setting to another with a crane, so resetting a portion of the scaffold is easily accomplished. Units may be employed as suspended scaffolding if desired. Essentially, any configuration of scaffolding may be built, so the system is versatile.

Background of Innovation

Preston Erection Pty Limited, a company associated with Preston International, operated several allied businesses; they rented and erected scaffolding, they rented mobile cranes, and they performed structural steel erection. The Australian construction industry was experiencing problems with the high cost of scaffolding because of the many bits and pieces being used and the time and labor needed for erection. As a result, the first idea was to assemble conventional scaffolding on the ground and then to erect it with a crane.

The idea was then extended to the design of a folding scaffold that would be easy to transport and quick to erect by crane. This design became known as the Preston Folding Scaffold. The development began in 1985 and in 1988 the first module was used commercially.

The Preston Folding Scaffold was patented in 1985 and the following patent numbers exist:

USA 5 127 492
USA 4 858 726
USA 4 773 506
USA 5 156 235
PCT/AU91/0
PCT/AU89/0

There is another collapsible scaffolding system that is called the ROPE System made by ROPE Systems Co. in Sweden. The inventor of that system is Mr. Rolf Petren.

The Rope system has the working platforms suspended from the top of the building by high tensile strength steel chains. Any vertical spacing between platforms can be achieved.

Mr. Petren's system is patented in both the US and Canada. The US patent number is 4 253 549, dated October 25, 1978. The system has been on the market for about 12 years.

Application

The Preston Folding Scaffold has been extensively used in the Australian construction industry since 1988 and appears to have been highly acclaimed by builders because it saves time and money. There has never been an accident attributable to the Preston Scaffold since its first commercial application.

The system is licensed in Japan to Sumitomo Construction Co. It has been manufactured and used in Japan since January 1993. The company expects the system to be licensed in the United States and in Europe in the near future.

It is expected that it will replace much conventional scaffolding, especially in highrise buildings where large volumes of scaffolding are used.

Notes on Nominated Persons

Mr. John Preston is the Managing Director of Preston Erection Pty Limited of Silverwater, New South Wales, Australia. His company developed the Preston Scaffold. Mr. Markus Preston is the Technical Supervisor with the same company.

Opinions of Outside Persons

Mr. David Bernstein

Mr. David Bernstein is the Managing Director of the Westhill Group of Huntington Beach, California. The Westhill Group is a company that is an agent for Preston Erection P/L and is engaged in trying to find a manufacturer and distributor for the Preston scaffold in the United States. They do not hold a license for the Preston system. Mr. Bernstein is an investment banker representing the scaffold company who hopes to find a licensee for the technology in this country. The parent company is Preston International. It is located near Sydney, Australia.

Mr. Bernstein says that the Preston Folding Scaffold lowers accidents. With conventional scaffolding, there are number of accidental falls because of loose planking, often where only one plank is involved. These kinds of falls are essentially eliminated because the Preston Scaffold has an integral floor at every level. Some contractors in Australia have reported lower insurance rates when Preston Scaffold is used.

He also says that the safety standards for scaffolding are more strict in Australia than in the United States, and that the Preston system reflects that strictness.

Mr. Bernstein believes that the system might not be universally used because of its cost, but it is very effective for large structures.

Mr. Gary Larson

Mr. Gary Larson is the Executive Director of the Scaffold Industry Association which represents scaffolding erectors through out the United States. Mr. Larson knows about the Preston Scaffold system. Preston International exhibited their product at a trade show in Sacramento, California in 1989. Mr. Larson met Mr. Preston and his Marketing Manager, Marika Awad at that time.

Mr. Larson says that Mr. Preston is the inventor of the system and is the owner of the business. Mr. Larson thinks it is a very good system, but believes it has limited application. As far as he knows, the system is not available in the US.

Mr. Rolf Petren

Mr. Rolf Petren is the inventor of a collapsible scaffolding system and is the owner of R. P. Scaffolding Systems Co., an associated company of Rope Systems Co. which markets the Rope

Scaffold System. Mr. Petren saw the Preston Folding Scaffold system at a trade show in Sacramento, California.

Mr. Petren says that he is not impressed with the Preston system as he considers it to be too clumsy and too heavy.

Mr. Petren believes that American Equipment Co., a subsidiary of Fluor Daniel, is looking into the Preston system.

Mr. Petren said that he is negotiating with Mr. Mark Wilbur of Safeway Scaffolding in Milwaukee, Wisconsin, to represent the Rope system in the US market.

Award Managers' Comments

The Preston Folding Scaffold appears to be an advancement in the use and erection of scaffolding. When large quantities of scaffolding are needed, the Preston system would seem to save time and labor. It appears that it is a safe system for the erector, the user, and the public.

The Rope System does not seem to be close enough to the Preston system to provide much competition. It does not appear to be as well developed nor versatile.

SELECTED INTERVIEW SUMMARIES

Phone Interviewer: Harris
Date: 11/16/93

#9406
No. 1

Name: Mr. David Bernstein
Title: Managing Director
Affiliation: Westhill Group
16681 Island, Suite 4
Huntington Beach, CA 92649

1. Mr. Bernstein says that there has been little improvement in scaffolding over many years. The Preston scaffold uses a crane to place in position. The crane can be either building mounted or on a truck. This speeds up the erection of the scaffold.
2. Preston scaffold has been used extensively in Australia. It is now being used in Japan. The scaffold lowers accidents. Mr Bernstein said that with conventional scaffolding, there are number of accidents because of loose planking, often only one plank. These kinds of falls are essentially eliminated because the Preston Scaffold has an integral floor at every level. Some contractors in Australia have reported lower insurance rates when Preston scaffold is used.
3. The Preston scaffold is pre-assembled in panels that are folded down flat for transportation on a flat-bed truck. The panels unfold to make a scaffold that is three stories high. The crane lifts the open section into place where it is bolted to the lower section. Disassembly is safer. The standard method of moving the standing board from one unit down to the next means that the work area is not covered and the worker can possibly fall through. This cannot happen with the Preston scaffold.
4. Mr. Bernstein says that another advantage of the Preston scaffold occurs in remodeling work, etc., where the scaffold must be moved from one location to another. The Preston can do this in a manner of hours instead of days.
5. The scaffold units have projecting stubs at the top. These fit into sockets on the bottom of the upper section. Once seated, a bolt through the socket and stub pins the two units together. The horizontal space between units is filled with hinged plates on one unit that are bolted down on the neighboring unit. There are extension plates that can be put into place between the scaffold floor and the building structure. This reduces the amount of openings. The Preston scaffolding has an integrated stairway system that replaces ladders. Mr. Bernstein believes that these stair units are separate units that can be placed wherever needed.
6. The Preston scaffold is patented in the US. It has been used in Australia for several years.
7. The westhill Group is a company that is trying to find a

manufacturer and distributor for the Preston scaffold in the United States. In this sense, Westhill is an agent but does not hold a license for the system. Mr. Bernstein is an investment banker representing the scaffold company. He hopes to find a licensee for the technology in this country. The parent company is Preston International. It is located near Sydney, Australia.

8. The system is licensed in Japan to Sumitomo Construction Co. It has been used in Japan since January 1993.

9. Mr. Bernstein says that the system wouldn't be universally useful because of its cost. It is very effective for large structures.

10. Mr. Bernstein will send additional information about the system within a week.

Phone Interviewer: Harris
Date: 12/13/93

#9406
No. 3

Name: Mr. Gary Larson
Title: Executive Director
Affiliation: Scaffold Industry Association
14039 Sherman Way, Suite 100
Van Nuys, CA 91405-2599

1. Mr. Larson knows about the Preston Scaffold system. Preston International exhibited their product in a trade show in Sacramento, CA in 1989. Mr. Larson met Mr. Preston and his Marketing Manager, Marika Awad at that time.
2. Mr. Larson says that Mr. Preston is the inventor of the system and is the owner of the business. Mr. Larson thinks it is a very good system, but believes it has limited application. As far as he knows, the system is not available in the US.
3. There is another collapsible scaffolding system that Mr. Larson know about. It is called the ROPE System made by ROPE Systems Co. in Sweden. The inventor of that system is Mr. Rolf Petren. Mr. Larson believes this is the first collapsible scaffolding system. We can send a FAX to: Actsess Technologies Corp. (Mr. Larson isn't sure of the name.) at Phone: 46-31-68-39-04 in Hovas, Sweden, and ask for additional information.

Phone Interviewer: Harris
Date: 12/14/93

#9406
No. 4

Name: Mr. Rolf Petren
Title: Owner
Affiliation: R. P. Scaffolding Systems
c/o Rope Systems Co.
PL. 611
43656 Hovas, Sweden
Phone: 46-31-28-70-65

Mr. Petren telephoned me after I had sent him a FAX.

1. Mr. Petren said that the Preston Scaffolding system was new to him. Later, he recalled having seen the system at the Sacramento show. He understands that they are cages that are set up on the ground with the use of cranes.
2. Mr. Petren believes that American Equipment Co., a subsidiary of Fluor Daniel, is looking into the Preston system. He is not impressed with the system as he considers it to be too clumsy and too heavy.
3. Mr. Petren says that the Rope system has the working platforms interconnected by high tensile strength steel chains. Any spacing between platforms can be gotten. The system is suspended from a top platform and the intermediate platforms are hung below.
4. The Rope system has been on the market for about 12 years.
5. Mr. Petren is negotiating with Mr. Mark Wilbur of Safeway Scaffolding in Milwaukee, WI, to represent the Rope system in the US market.
6. Mr. Petren's system is patented in both the US and Canada. The US patent number is 4253549, dated October 25, 1978. Mr. Petren thinks that the Preston system might be in violation of this patent since his system can also be supported by a rigid structure.
7. Mr. Petren provided the address and phone number as shown above.

Phone Interviewer: Harris
Date: 12/15/93

#9406
No. 5

Name: Mr. David Bernstein
Title: Managing Director
Affiliation: Westhill Group
16681 Island, Suite 4
Huntington Beach, CA 92649

Mr. Bernstein was called a second time to try to set up communications with Australia and to clarify some questions.

1. Mr. Bernstein has never heard of the Rope system. He doesn't know of any system similar to the Preston system.
2. Mr. Bernstein says that the Patent Scaffolding Company and the Safeway Scaffolding Company are scaffolding vendors. He is trying to develop a relationship with them.
3. Mr. Bernstein knows that the Preston system is patented. He does not have the numbers, but believes that it was about 1989.
4. Mr. Preston can be called in Silverwater, Australia. When it is 4:30 pm in Ann Arbor it is about 7:30 am on the following day in Australia. Mr. Bernstein doesn't know why Mr. Preston has not answered the FAX, but he is sure that he will. (Note: The FAX arrived shortly after this conversation with Mr. Bernstein.)
5. Mr. Bernstein says that the safety standards for scaffolding are more strict in Australia than in the United States, and that the Preston system reflects that condition.
6. Mr. Bernstein is aware of the Scaffold Industry Association which has their office nearby. He has not had much contact with them because they represent scaffold erectors and not the manufacturers.

CONTACTS MADE

Contacts Made

Name: Mr. David Bernstein
Title: Managing Director
Affiliation: Westhill Group
16681 Island, Suite 4
Huntington Beach, CA 92649

Name: Mr. Bart O. Carrigan
Title: Executive Vice President
Affiliation: Michigan Chapter
Associated General Contractors of America
2323 North Larch St.
Lansing, MI 48909

Name: Mr. Gary Larson
Title: Executive Director
Affiliation: Scaffold Industry Association
14039 Sherman Way, Suite 100
Van Nuys, CA 91405-2599

Name: Mr. Rolf Petren
Title: Owner
Affiliation: R. P. Scaffolding Systems
c/o Rope Systems Co.
PL. 611
43656 Hovas, Sweden
Phone: 46-31-28-70-65

PRIMARY EXHIBITS

WESTHILL GROUP

16681 Island, Suite 4
Huntington Beach, California 92649

Telephone: 714 840 6830

Fax: 714 840 8367

November 22, 1993

Dr. Robert B. Harris
Professor Emeritus
Department of Civil Engineering
The University of Michigan
Ann Arbor MI 48109-2125

Dear Dr. Harris,

I appreciated speaking with you last week regarding the Preston Scaffold and its participation in the Construction Innovation Forum.

At your request, I have enclosed a number of exhibits which may assist in the evaluation of the product. The exhibits include a product brochure, a 13 minute video which illustrates the assembly and disassembly of the product, and a cost comparison of the Preston Scaffold and a conventional scaffold.

The first page of the cost comparison illustrates the tremendous savings that utilization of the Preston scaffold will generate. The second page describes the safety features of the product that results in lower worker injuries translating into lower insurance costs and damage awards. The third page describes the additional contingent and indirect costs in all existing scaffolds which are not present in the Preston scaffold.

As I indicated to you, the product has been in use in Australia for a few years where it has undergone extensive testing and improvement. Just this year, the product was introduced into the Japanese market and has done quite well. We are in the process of talking with a number of companies about manufacturing and distributing the product in North America.

If there are any further questions about the product please do not hesitate to contact me. I have sent the original application back to Australia for signature and they will be forwarding the completed application directly to you.

Sincerely,

A handwritten signature in cursive script that reads "David Bernstein". The signature is written in dark ink and is positioned above the printed name and title.

David A. Bernstein
Managing Director

DIRECT COST OF SCAFFOLDING **ERECTION - HIRE PERIOD - DISMANTLE** (ADD INDIRECT COST FOR TOTAL COST)

COMPARATIVE ANALYSIS

Construction Size 436 Ft (133m) Long x 129.3 (42.5m) High -60901 Sq Feet (5660 Sq Metre)

	Conventional System Scaffold Average Conditions	Preston Folding Scaffold (Using Mobile Crane) (Using minimum units erected)	Preston Folding Scaffold (Using Site Crane) (Using minimum units erected)
Erect & Dismantle Scaffold	Charge out rate \$34.00 P/Hour P/Man 121,802 Sq Ft @ .70¢ per Sq Ft. Cost \$85,261.00 11,320 Sq Mtr @ \$7.53 Per Sq Mtr. Cost \$85,261.00	Charge out Rate \$34.00 P/Hour P/Man 121,802 Sq Ft @ .70¢ per Sq Ft. (including crane) Cost \$79,171.00 11,320 Sq Mtr @ \$6.99 Per Sq Mtr. Cost \$79,170.00	Charge out Rate \$34.00 P/Hour P/Man 121,802 Sq Ft @ .70¢ per Sq Ft. (including crane) Cost \$23,142.00 11,320 Sq Mtr @ \$2.05 Per Sq Mtr. Cost \$23,142.00
Erection Time (6 Days per Week)	17.3 Weeks	3.3 Weeks	2.3 Weeks
Man Hours/Man Days/Crew Days	2497/312/104 (3 Man Crew)	800/100/20 (2 Scaffolders, 2 Dogman, 1 Crane)	560/70/14 (2 Scaffolders, 2 Dogman, 1 Crane)
Erection & Dismantle Speed	108m² Per Day (1171 Sq Ft.)	41 Units Per Day - 580m² (6242 Sq Ft.) (Minimum)	58 Units Per Day - 820m² (8830 Sq Ft.) (Minimum)
Erect & Dismantle Mesh	121,802 Sq Ft. @ .18¢ Per Sq Ft. \$21,924.00 11,320 Sq Mtr @ 1.94 Per Sq Mtr. \$21,924.00	—	—
Man Hours/Man Days/Crew Days	648/81/27 (3 Man Crew)	—	—
Board Movement Min. 4 Trades	2.74 Per lineal foot x 436 Ft. x 84 movements \$100,350.00	—	—
84 Movements x Length of Building 436 Ft (133m)	8.98 per lineal metre x 84 movements \$100,350.00	—	—
Man Hours/Man Days/Crew Days	2954/369/123 (3 Man Crew)	—	—
Estimated Hire Period of 16 Weeks	.11¢ per Sq Ft x 60901 x 16 = \$107,186.00	.11¢ per Sq Ft x 60901 x 16 = \$107,186.00	.11¢ per Sq Ft x 60901 x 16 = \$107,186.00
(All scaffolds costed at same rate)	\$1.185 per Sq Mtr x 5660 x 16 = \$107,186.00	1.185 per Sq Mtr x 5660 x 16 = \$107,186.00	\$1.185 per Sq Mtr x 5660 x 16 = \$107,186.00
TOTAL	\$314,721.00	\$186,357.00	\$130,328.00
SAVINGS		40.79%	58.59%

Note: Hiring cost of equipment was costed at the same rate due to possible discounting and variable hire rates.
 The Preston Scaffold is cheaper to manufacture and to hire than conventional scaffold.

SAFETY FEATURES OF THE PRESTON SCAFFOLD

(DURING ERECTION AND DISMANTLING)

- INSTANT FULL WIDTH SAFE WORKING PLATFORM
- MESH SAFETY SCREEN ON OUTER FACE, HANDRAIL AND KICKBOARD ON INNER FACE
- IMMEDIATE STAIR ACCESS FROM LEVEL TO LEVEL
- GREATLY REDUCED AMOUNT OF ARDUOUS ASSEMBLING AT PERILOUS HEIGHTS
- INSTANT OVERHEAD PROTECTION FOR ERECTORS BELOW
- SUBSTANTIALLY REDUCED MANUAL HANDLING AND LIFTING OF EQUIPMENT
- GREAT RIGIDITY AND STABILITY
- LESS STORED LOOSE ITEMS ON SCAFFOLD OR SITE
- GREATLY REDUCED HUMAN ERRORS AND TRAPS
- MAXIMUM EFFICIENCY IN THE ERECTION PROCESS

FOR THE TRADESMEN

- FULL LEVEL NON REMOVABLE NON SKID PLATFORMS
- FULL MESH AND KICKBOARD PROTECTION ON OUTER FACE
- HANDRAIL AND KICKBOARD PROTECTION ON INNER FACE
- STAIR ACCESS TO ALL LEVELS OF THE SCAFFOLD
- CONTINUOUS USE OF ANY LEVELS WITHOUT ALTERATION OR MAINTENANCE BY SCAFFOLDERS
- CONSTANT OVERHEAD PROTECTION
- FIRM RIGID SAFE WORKING LEVELS

FOR THE GENERAL PUBLIC

- GREATLY REDUCES FALLING OBJECTS, PROVIDING SAFE ENVIRONMENT BELOW
- MINIMUM INCONVENIENCE BECAUSE OF ITS SPEEDY ERECTION
- POTENTIALLY LESS ACCIDENTS DUE TO THE SMALLER AMOUNT OF EQUIPMENT STORED AT GROUND LEVEL

ADDITIONAL CONTINGENT AND INDIRECT COST IN ALL EXISTING CONVENTIONAL SCAFFOLD

(To be added to direct cost of erection, dismantling and hire)

- Extra erection and dismantle time resulting in extended building program
- Extended use of builders crane and hoist to lift thousands of bits and pieces of scaffold
- Manual lifting and erection of thousands of bits and pieces of scaffolding
- Arduous manual erection and dismantling at perilous heights
- Scaffolders not arriving on site on time, unable to alter scaffold as required on time -delaying progress
- Tradesmen or builders not able to work with maximum efficiency on scaffold because of unusable scaffold, tradesmen moving off job because scaffold platform is not ready on time or is not safe
- Restricted number of work platforms available at any one time to work on
- Not easy to supervise work in progress or completed work on building due to lack of access and platform.
- Lack of constant and safe access to scaffold platforms
- Lack of safe environment to erectors, workers and public
- Down time due to safety issues, accidents or unsafe scaffold
- Extended hire of scaffold due to disruptions and down time
- Extra amenities, sheds etc.. for extra labour on site
- Extra supervision, organising, telephone calls etc... to sort out and organise problems herein
- Unforeseen movement of planks, safety issues, problems etc...
- Counting and storage of thousands of bits and pieces of scaffold components
- Repair to defective external mesh protection and scaffold platforms
- Replace loose items, planks, handrails, kickboards etc... altered or removed by others
- Traps and unsafe scaffold due to loose items removed or altered
- Idle scaffold equipment and sundry equipment lying all over the site
- Unusable scaffold when scaffolders are moving or altering scaffold planks, handrails, kickboards, meshboards etc...
- Delay, penalties, liquidated damages, over run of building schedule etc...
- Unfavourable weather disrupting erection, dismantling and alteration of scaffold
- Damages, lost or stolen equipment
- Accidents, unsafe scaffold due to human error
- Extra insurance and other associated costs
- Scaffold not complying to Construction Safety Act, Occupational Health and Safety Act and Workers Compensation Act
- Lack of constant overhead and external protection
- Costly maintenance and storage of thousands of bits and pieces of scaffold
- Load bearing welded connection known to break and cause accidents
- Restricted erection time, can not be erected and dismantled at night or even under unfavourable weather conditions
- Lack of aesthetic appearance - not always complimentary to site appearance
- Loading capacity and height potential greatly reduced.

The above contingent and indirect costs are an every day occurrence with conventional scaffolding and is not usually associated with the Preston Scaffold

14th December 1993

Mr Robert B Harris
Awards Manager
Construction Innovation Forum
Department of Civil & Environmental Engineering
University of Michigan,
2340 G G Brown Building
2350 Hayward, Ann Arbor, MI 48109-2125

BY FAX: 0011 1 313 764 4292 & MAIL
PAGES: 34

Dear Sir,

I refer you to your fax dated 13th December 1993 and answer your questions in order.

1. The most innovative aspect of the Preston Scaffold is as follows:-

1.1 It is **10 times faster** than conventional scaffolding.

1.2 It is the **safest** scaffold on the market whereas the workers are able to perform their duties on a fully decked platform with mesh on the outside and handrails on the inside thus being fully protected and avoiding injuries.

The planks cannot be removed creating gaps and it is almost impossible to fall out especially with the mesh on the outside.

It is also safe for the public as nothing can protrude through the mesh from the external face of the scaffold even large objects projected at high speed.

It is safe as it is one complete structure and every component is joined to create a continuous member therefore when fully erected the scaffold is one unit and if there is any accident, the pieces do not fall apart and end up on the street. If anything, the scaffold will be bent, however, it will remain in a static position. This is important especially if workers are situated on the scaffold, nothing will fall down.

1.3 Please also refer to the attached page which is included in our brochure. "Advantages of the Preston Folding Scaffold" Page 46.

1.4 It is the **strongest, safest and fastest** scaffold to erect in the world.

2. The history of the development of the scaffold is that Preston Erection Pty Limited, a company associated with Preston International had several business being scaffold hire and erection, mobile crane hire and structural steel erection.

This combination of businesses created the idea that by having cranes to lift scaffolding, we were erecting conventional scaffolding on the ground and raising those erected modules by the crane.

The idea was then extended that instead of putting conventional scaffolding together on the ground that we design a brand new **Folding Scaffold** which would be easy to transport, quick to erect and erected by crane. From there onwards the Preston Folding Scaffold was created.

The development began in 1985 and in 1988 the first module was used commercially with tremendous success and we could not keep up with production.

We were so successful in the industry that no competitors were able to compete with our prices and advantages.

The Australian operation was then purchased by GKN Australia, one of the largest scaffold companies in the world.

NOTE: GKN Australia did not purchase any other world rights except for Australia.

3. The Preston Folding Scaffold was patented in 1985 and the following patent numbers exist.

USA	5 127 492
USA	4 858 726
USA	4 773 506
USA	5 156 235
	PCT/AU91/0
	PCT/AU89/0

The two PCT applications contained approximately another 15 patents which have yet to be divisionalised.

Apart from the USA patents listed above, we have patents in Canada, Mexico and throughout all major countries in the world.

4. I do not understand what the "ROPE" system is. However, the Preston Folding Scaffold is one of the first innovations in the past 50 years, its major difference is that every construction site has either a mobile crane or a site crane and there is no need to erect scaffolding bit by bit whereas each component is no more than 3 meters long and erected manually at perilous heights.

There have been many scaffolding incidents using conventional scaffold and the Preston Folding Scaffold has not had one single accident since 1988 when it began its full use throughout the world.

The Preston Folding Scaffold is being used in several other countries in Asia, South Africa and Australian regions.

We believe that soon the American market will accept the Preston Folding Scaffold as a new and innovative method of scaffold erection.

Should you require any further information please do not hesitate to contact myself or Mr David Bernstein of Westhill Group,

16681 Island, Suite 4

Huntington Beach

CALIFORNIA 92649

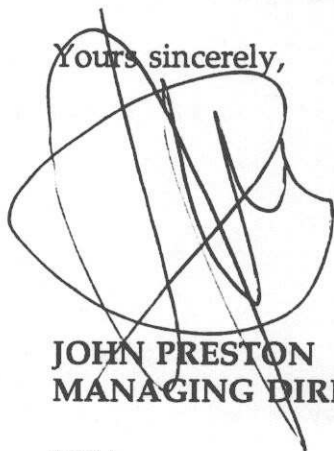
U.S.A.

PH: 714 840 6830

FAX: 714 846 8367

Should you require a 48 page colour brochure on the scaffold, Mr David Bernstein will assist. Alternatively please contact us for a copy.

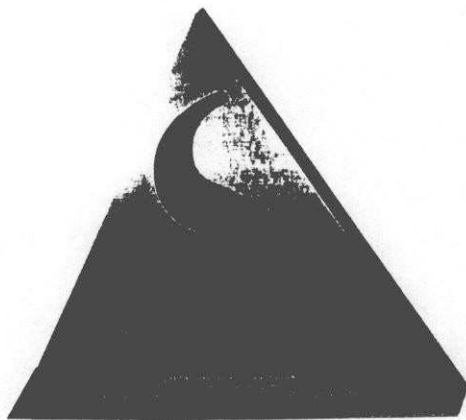
Yours sincerely,

A large, stylized handwritten signature in black ink, appearing to be 'JP', is written over the typed name and title.

**JOHN PRESTON
MANAGING DIRECTOR**

JP:hl
1852

SECONDARY EXHIBITS



BHP AWARD 1987

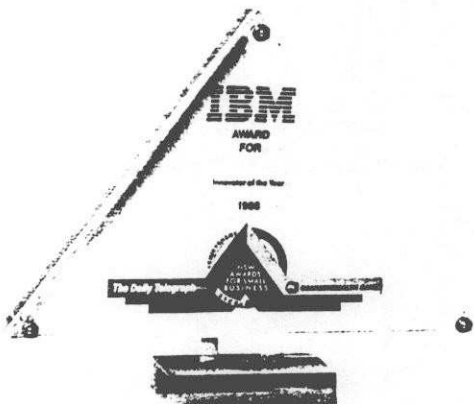
AWARD WINNING SCAFFOLD

BHP STEEL AWARD 1987 CONSTRUCTION CATEGORY

Australia's largest public company B.H.P. have awarded John Preston the coveted B.H.P. Steel Award for 1987. (Construction Category)

IBM INNOVATOR OF THE YEAR 1988

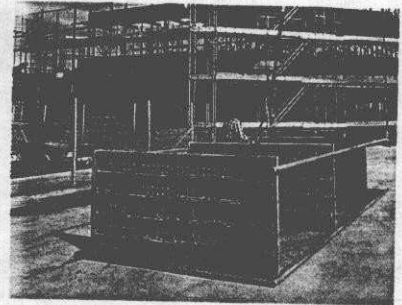
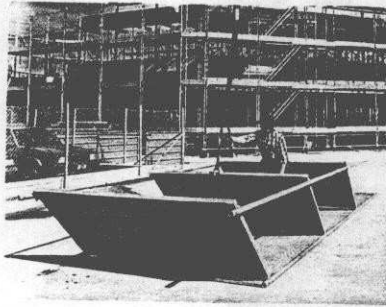
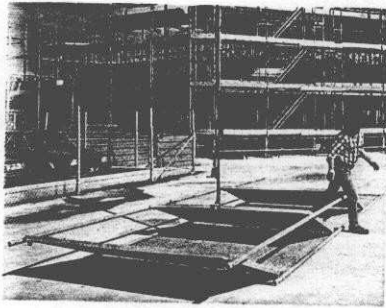
IBM the world's largest computer company have also recognized this truly unique product by presenting this prestigious award.



IBM AWARD 1988

As winner of these two awards John Preston has received a fitting endorsement for a truly new product system — the Preston Crane Erected Folding Scaffold or better known as Preston Scaffold. A system that will provide revolutionary advantages for the construction and building industry worldwide.

FASTER TO ERECT



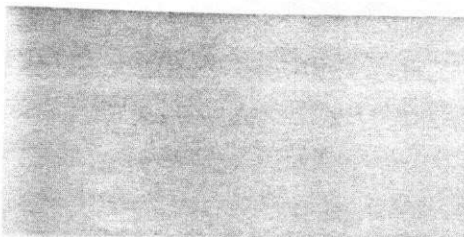
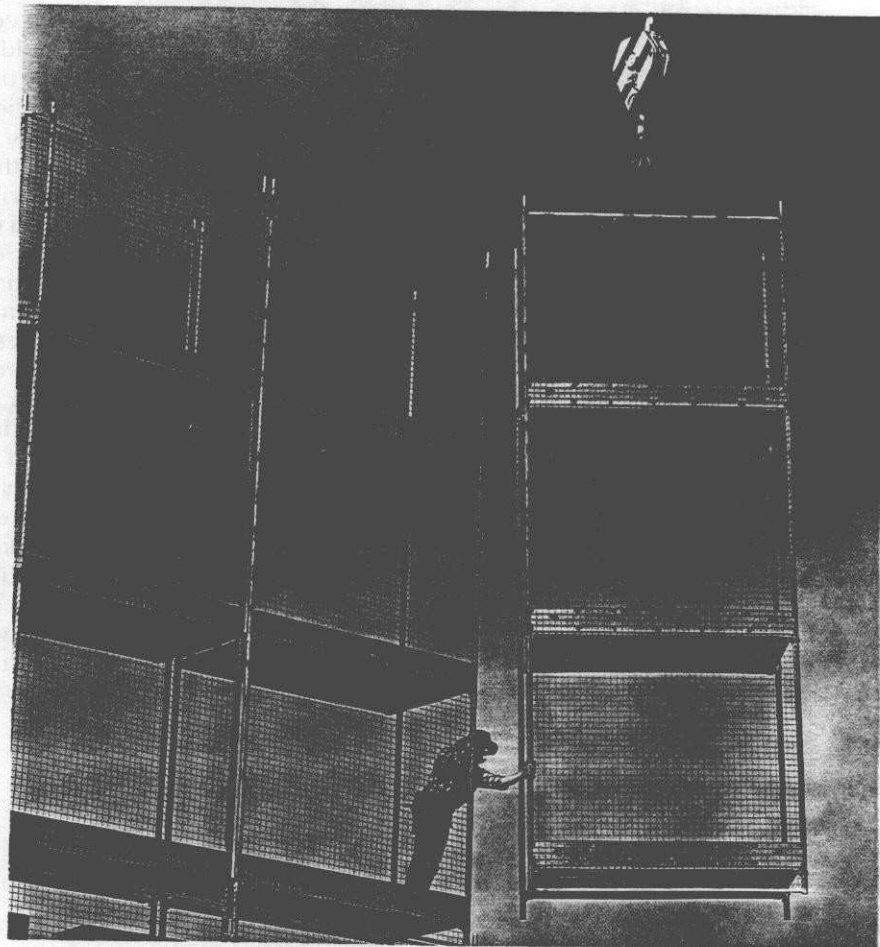
TEN TIMES FASTER TO ERECT

Tests carried out confirm that the speed of erecting and dismantling Preston Scaffold system is up to 10 times faster than conventional scaffolding and may be even faster to erect depending on the particular application. Preston Scaffold units arrive on site in a folded mode 2.3m (7'6") wide x 6.150 metres (20'2") long x 100mm (4") high. When unfolded length and width remain the same but depth increases to 1.12 metres (3'8") (5 planks wide). Each module face elevation is 14.14m² (152.25 sq. ft.).

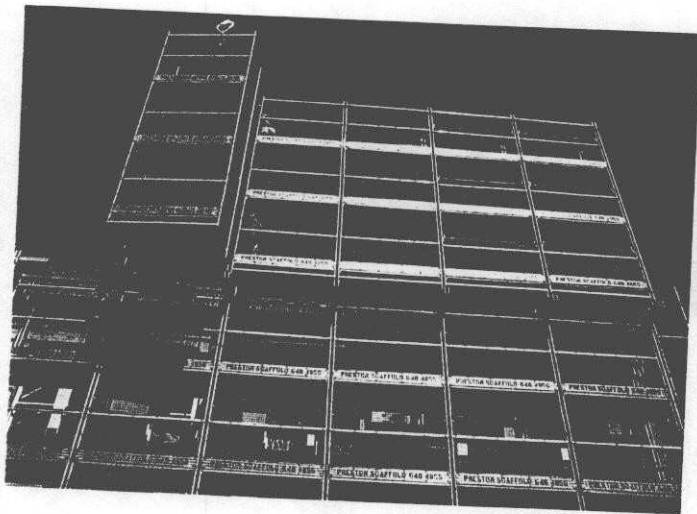
The modular design and construction eliminates the need for assembling together many components normally necessary for conventional scaffolding. The units are unfolded on the pallet or on the ground, lifted in to position and locked together using special connectors.

Approximately 800 square metres (8608 square feet) of scaffolding can be erected in one day using one on site or mobile crane and a crew of 4, dismantling is even faster approximately 900 square metres (9864 square feet) a day. For more details see page 23.

Once erected all components on the Preston system are locked in position. There are no loose planks or other components that can cause accidents.

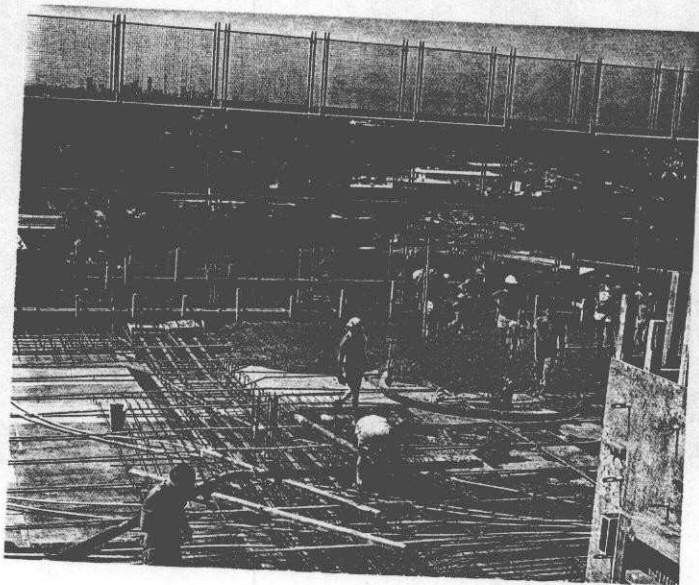


PROVEN SAFETY RECORD



The PRESTON SCAFFOLD system is fabricated with heavy duty galvanised steel and factory fitted with non slip steel working decks, handrails and kick boards at every 2.050 metres (6'7") in height. Stair access is an integral part of the scaffold and ensures access to all levels of the scaffold. The decks provide a solid working surface from the very first unit's installation and do away with arduous manual assembly at perilous heights. The dangerous and expensive need for repositioning decks and other components during different stages of construction is also eliminated. Once erected the scaffold is a complete structure requiring no further alterations and maintenance.

Further safety is ensured by a wall of steel mesh welded to the outer face of each scaffold unit minimizing accidents for the erector, the workers on the scaffold and the public below. The above safety aspects and many more have received acclaim by all users including large construction companies and public authorities.

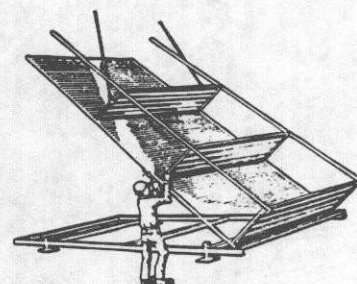
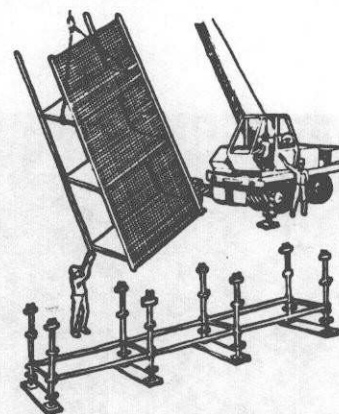
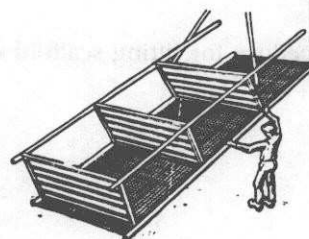
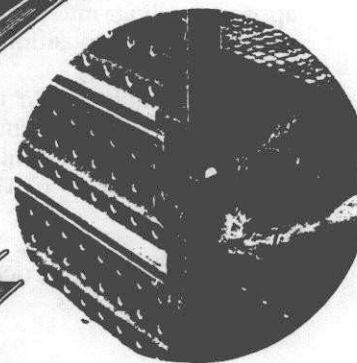
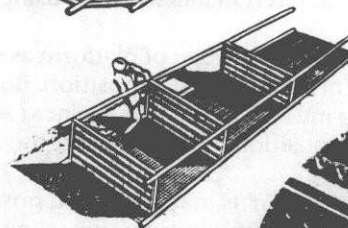
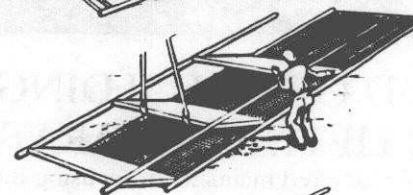
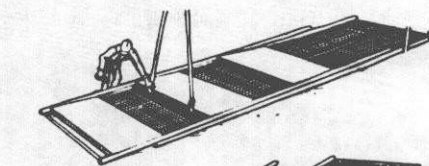
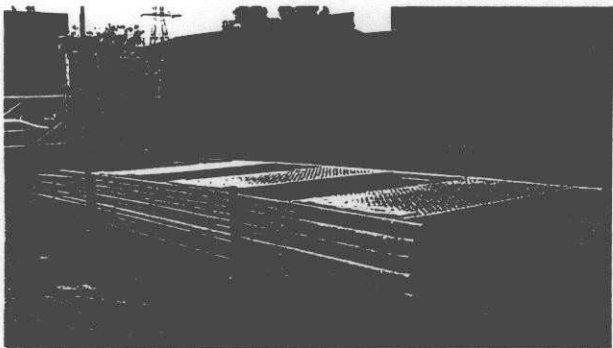


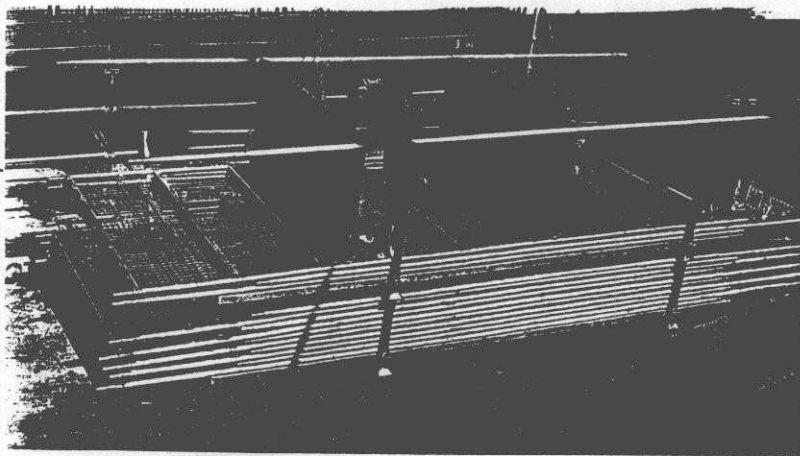
ERECTION OF PRESTON FOLDING SCAFFOLD

Units are transported in folded position (in pallets) and are unfolded at the site. Units can be unfolded on the pallets or on the ground. Position one end of the Preston sling at the centre of the middle platform. Raise until platform is in the vertical position. This can also be done manually. While in this position tighten 4 locking bolts on each platform. Remove sling and reposition on the underside of the top platform. **IMPORTANT:** Locking device on lifting sling lugs must be in locked position. The unit is now ready for lifting.

The unit is now crane lifted to the base and positioned on the forkhead spigots. The unit is secured by gravity locking pins. Boob fitting to be attached near the top of the standard if required to line up. On each platform unscrew the two bolts holding the flap plate and fold it on to the adjacent unit platform. Secure the flap plate into its new position by the two bolts. (See detail C page 39). **NOTE:** The sling is not removed until the unit is secured.

The previous procedure is repeated. **IMPORTANT:** Scaffold ties must be positioned according to relevant codes. Stair units should be placed at every 20-30 metre (60-100 feet) in length of scaffold.





METHOD OF UNFOLDING UNIT BY USING CRANE OR OTHER LIFTING APPARATUS

Units can either be lifted manually or by using the method shown.

1. Position crane hook on edge of platform as shown in figure A and lift scaffold unit 'm' in its unfolded position. Bolt up and place lifting apparatus (sling) into position to lift the next scaffold unit 'n' into its unfolded upright position. Proceed to lift the first unit 'm'.
2. When scaffold unit 'n' is in its unfolded position tighten one bolt only to lock it. Remove lifting apparatus (sling) and lift scaffold unit 'm' into its position. While this is happening tighten up remaining locking bolts on unit 'n'. The scaffold unit 'n' is now ready to be lifted by crane.
3. Follow the same procedure for lifting scaffold units out of the other scaffold pallets.

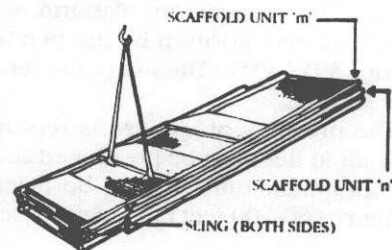


FIGURE A

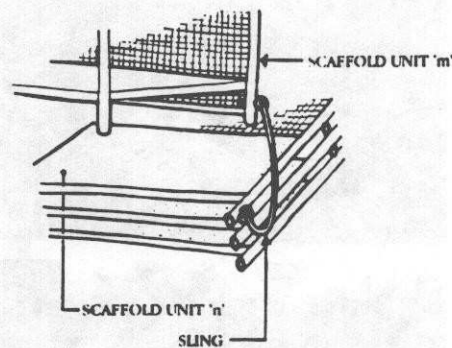


FIGURE B

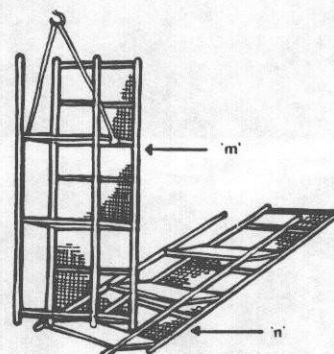
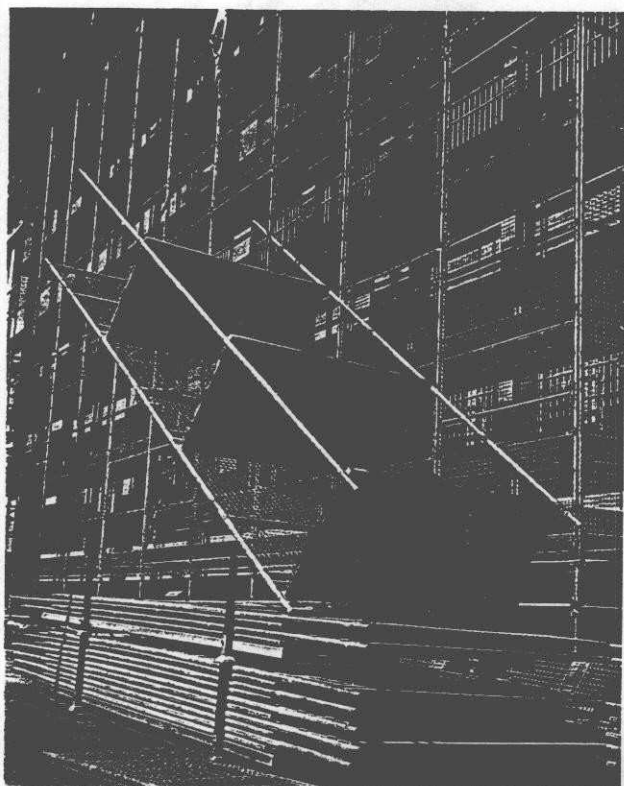
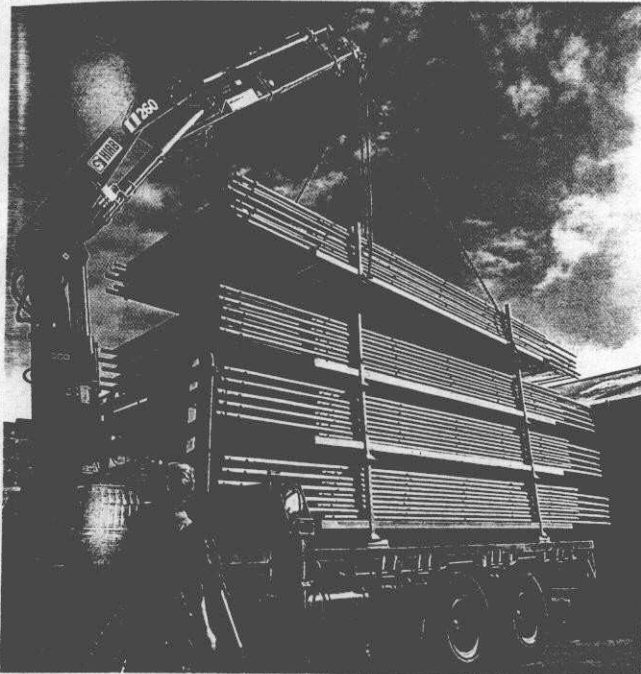


FIGURE C



COST SAVINGS



20 scaffold units can be transported on one table top truck (283m²) — (3045 sq. ft.), 5 scaffold unit per pallet (2.5 tonnes) x 4 pallets per table top trucks (10 tonnes).

OVERALL COST SAVINGS UP TO 60% TO THE BUILDER

Cost analysis of the Preston system compared with conventional scaffold has evidenced overall savings of up to 60%.

Factors contributing to these substantial savings are faster erecting/dismantling time, less crew/crane time required and no additions, movement of planks or other components during construction. The PRESTON SCAFFOLD system is the safest available scaffold, reducing accidents and unnecessary delays.

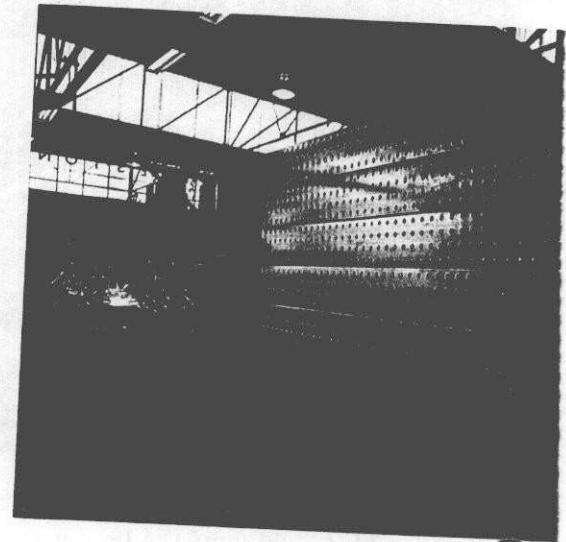
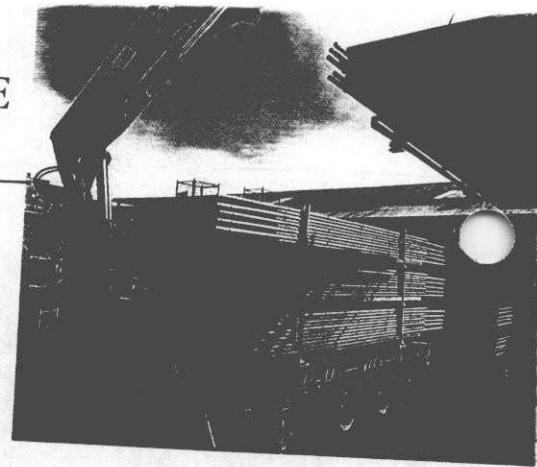
Couple these savings with superior safety, convenience and functional innovation and the PRESTON SCAFFOLD system is a must for all building and construction requirements.

Erected in 2 days 1679m² (18,066 sq. ft.) Planked out on every level, 2 stair access and fully meshed on external face.
Height 54m (177 ft).

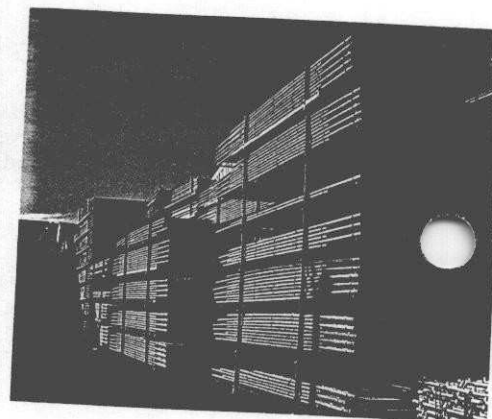


TRANSPORTATION, STORAGE and MAINTENANCE

All units are constructed in heavy galvanised steel. The design is very simple with a minimum of moving parts resulting in almost a no maintenance scaffold. Prior to arriving on site all PRESTON SCAFFOLDING units are lifted and lowered into position by crane, the fully erected scaffold is damage free and in first class condition. Once erected all the load on the PRESTON SCAFFOLD is borne by the bolted connections and not the welded joints, this removes the dangerous situation that could occur through cracked or broken welds. A further reason why PRESTON SCAFFOLDING keeps you secure no matter the height or application.

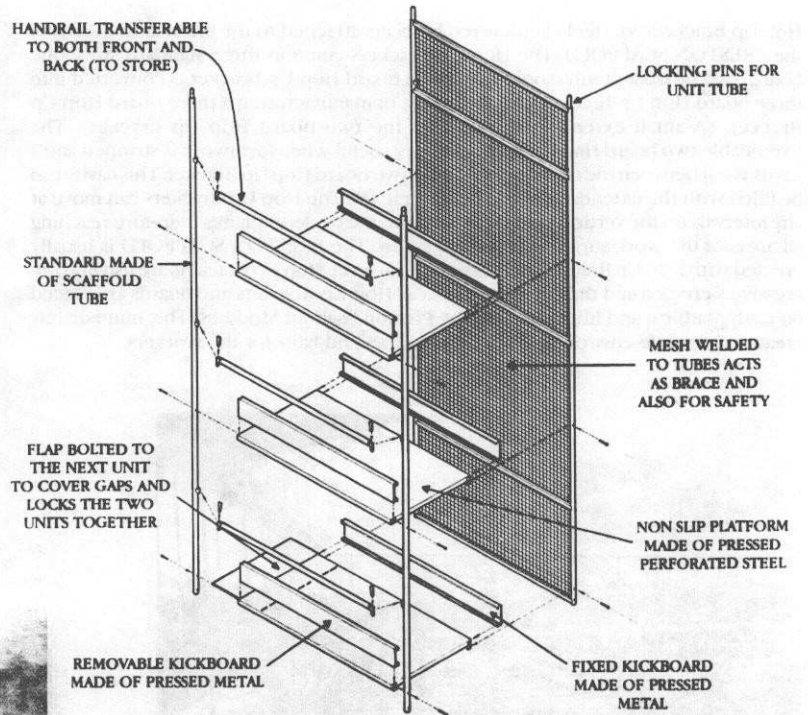


Easy storage.
Pallets can be stacked 40
high (708²) (7613 sq. ft.) of face scaffold
in an area of 19m² (204 sq. ft.)

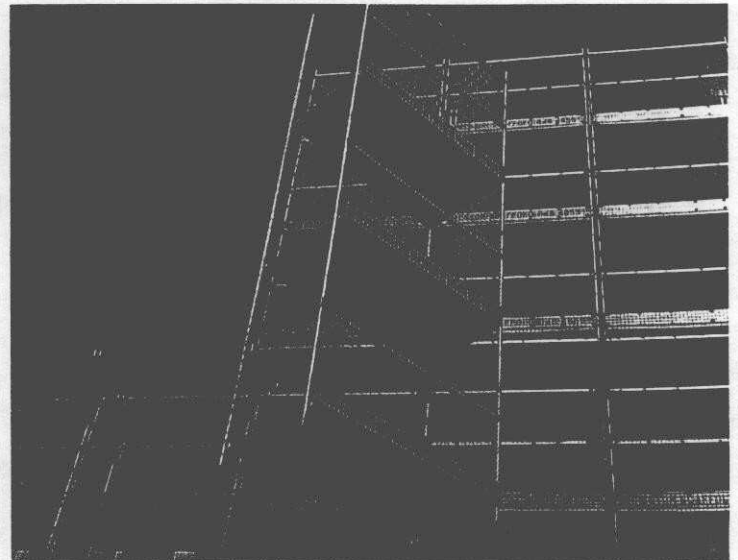
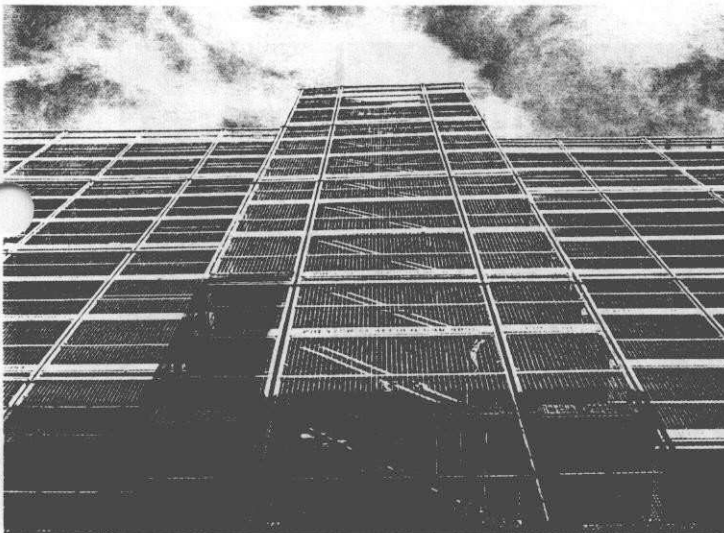


DETAILED COMPONENTS

The PRESTON SCAFFOLD has quality engineered components to suit most applications enabling these jobs to be carried out more efficiently and more thoroughly than if conventional scaffold were used.

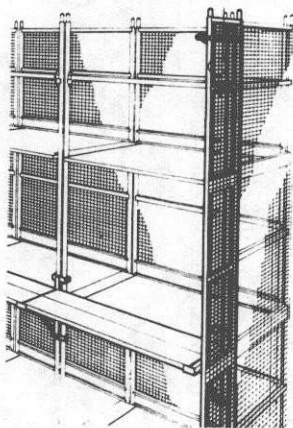
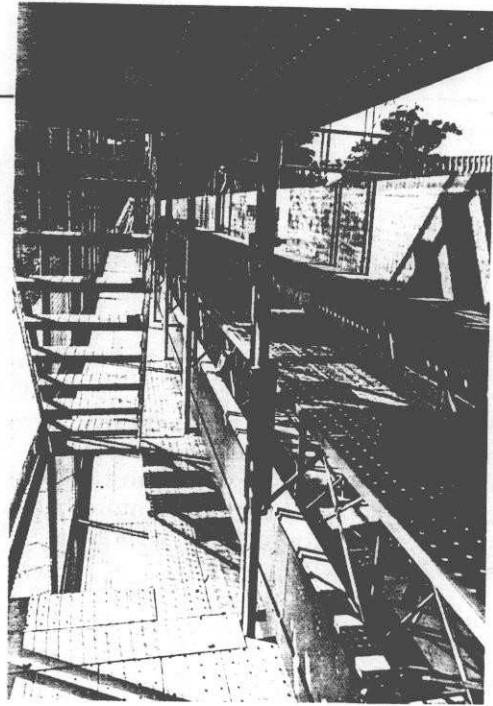
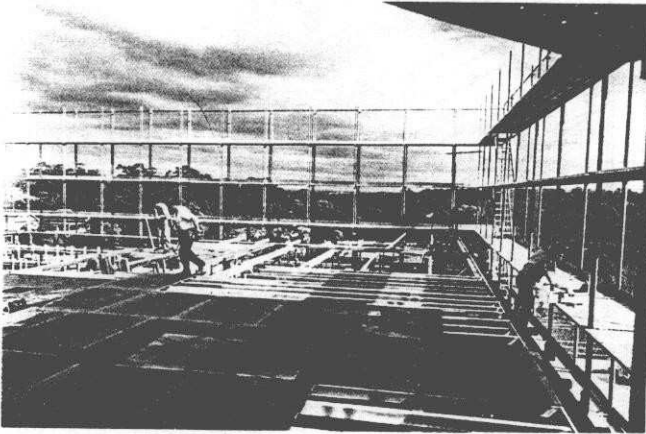


EXPLODED 6.15m (20'2") UNIT

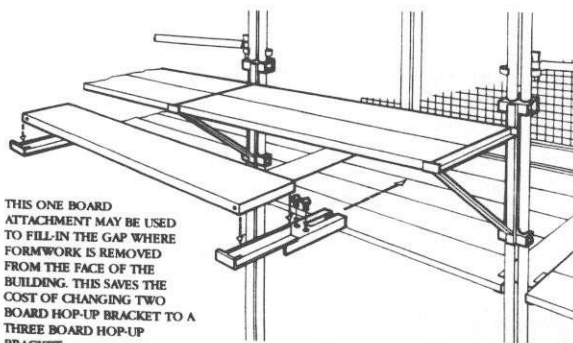
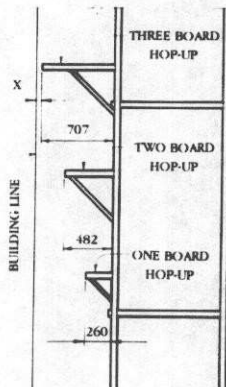


HOP UPS

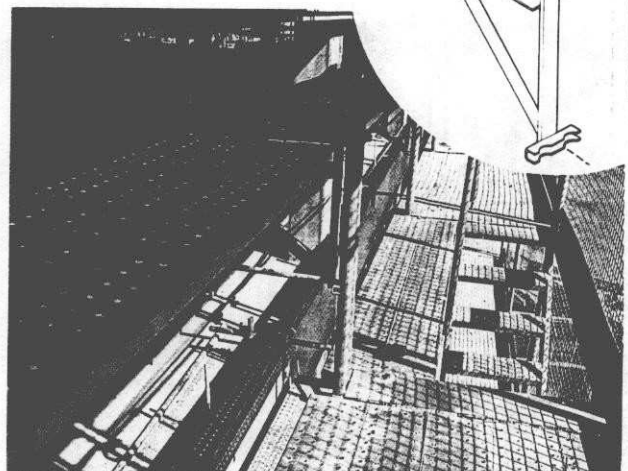
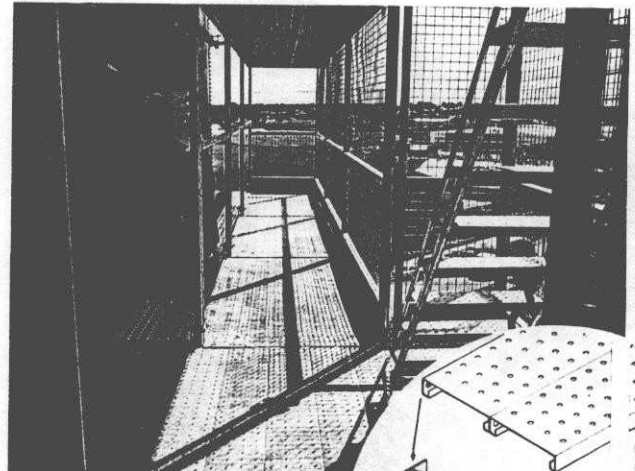
Hop Up Brackets are steel cantilevered brackets attached to the internal standards of the PRESTON SCAFFOLD. The Hop Up Brackets come in three standard sizes, one board, two board and three board. The two board Hop Up Bracket is converted into three board Hop Up Bracket saving the cost of manufacturing a three board Hop Up Bracket. (A small extension is added to the two board Hop Up Bracket). The extendable two board Hop Up Bracket is very useful when formwork is stripped and a cavity is left between the concrete wall and a two board Hop Up Bracket. This cavity can be filled with the extendable three board bracket. The Hop Up Brackets can move at any intervals on the vertical standards between the decks of planks therefore reaching all areas of the work surface being worked on. The PRESTON SCAFFOLD is usually erected with Hop Up Brackets at every platform level. Hop Up Brackets are usually progressively erected and the correct amount of Hop Up Brackets and boards are placed on each platform and lifted up with the Preston Scaffold Modules. This immediately creates a very safe environment for the erectors and later for the workers.



END MESH FOR HOP-UP BRACKETS



THIS ONE BOARD ATTACHMENT MAY BE USED TO FILL-IN THE GAP WHERE FORMWORK IS REMOVED FROM THE FACE OF THE BUILDING. THIS SAVES THE COST OF CHANGING TWO BOARD HOP-UP BRACKET TO A THREE BOARD HOP-UP BRACKET.

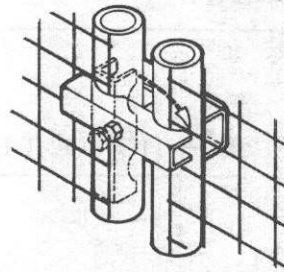


NOTE: THE 2 BOARD HOP UP BRACKET CONVERTS TO A 3 BOARD HOP UP BRACKET AS SHOWN IN THE LEFT CORNER DIAGRAM.

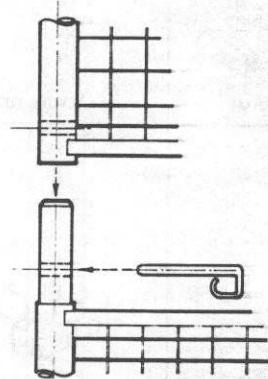
CONNECTORS

Due to the innovative design in the PRESTON SCAFFOLD, once a scaffold is erected it becomes one complete structure continuously connected vertically and horizontally, creating a super strong scaffold structure which can withstand enormous loading when there is any accident. The male and female connections in the standards, which connect the PRESTON SCAFFOLD vertically, are secured with gravity pins and, therefore, form a continuous positive tie for the full vertical length of the scaffold. The scaffold is also tied longitudinally by the platform flap (Detail C) which is bolted securely to each adjoining platform. PRESTON SCAFFOLD is also braced by the welded mesh on the outside and end of the scaffold.

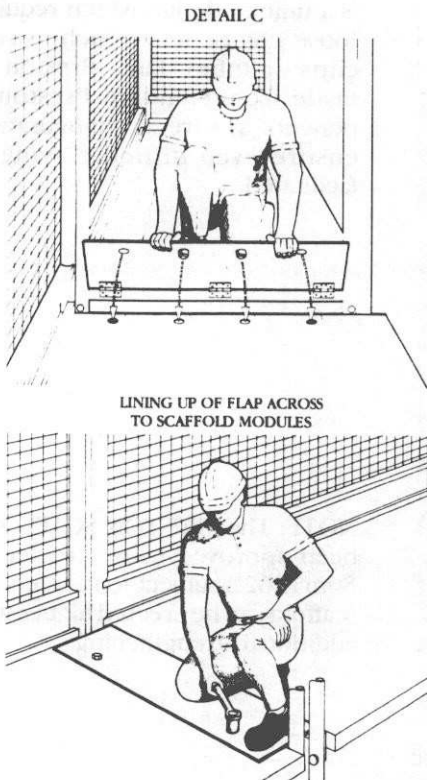
A number of actual accidents and building collapses have occurred but due to the strength of the PRESTON SCAFFOLD damage was minimised and lives of workers and the public were saved.



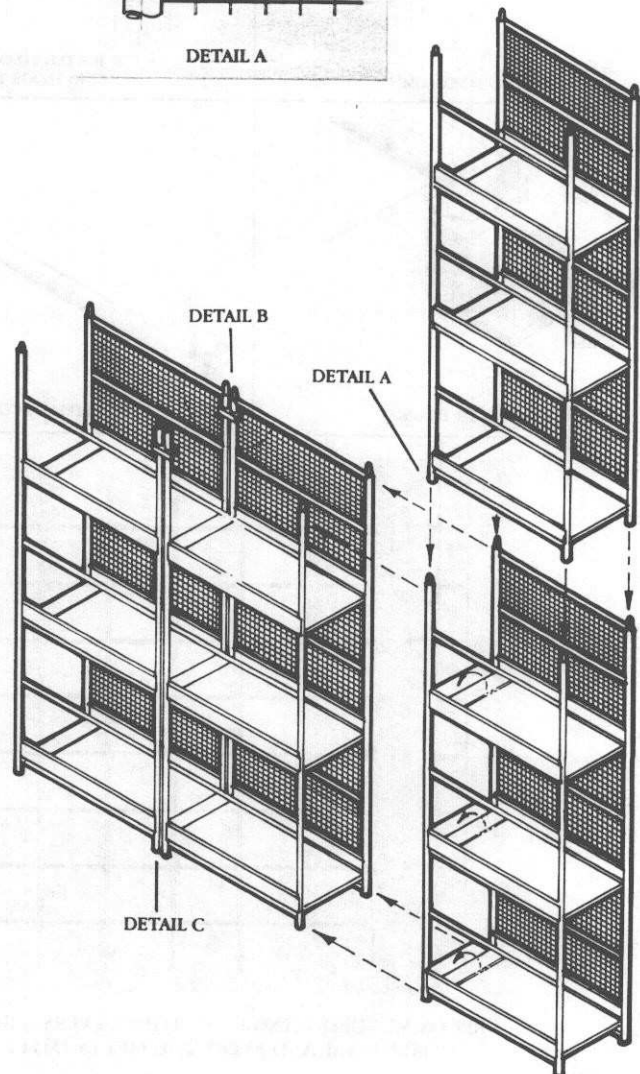
DETAIL B



DETAIL A

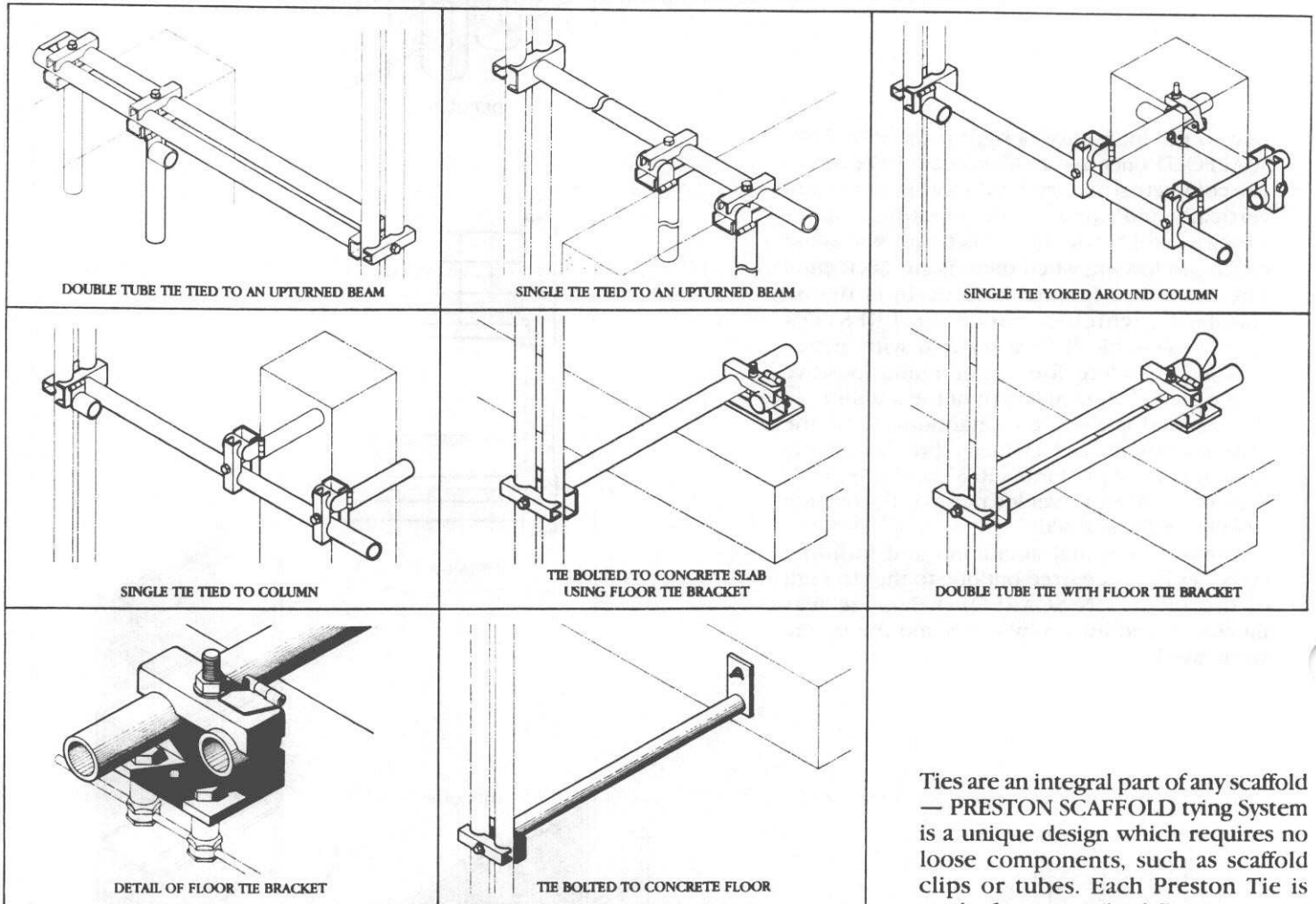


DETAIL C

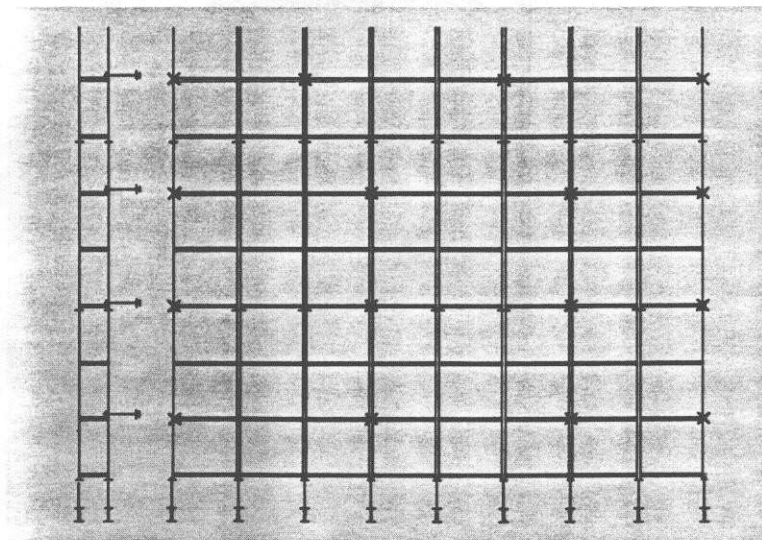


TIES TO BUILDING

TYPICAL SELECTION OF TIE TO STRUCTURE OR BUILDING



Ties are an integral part of any scaffold — PRESTON SCAFFOLD tying System is a unique design which requires no loose components, such as scaffold clips or tubes. Each Preston Tie is made from standard Preston components in several configurations to ensure even difficult 'tying in' is facilitated.

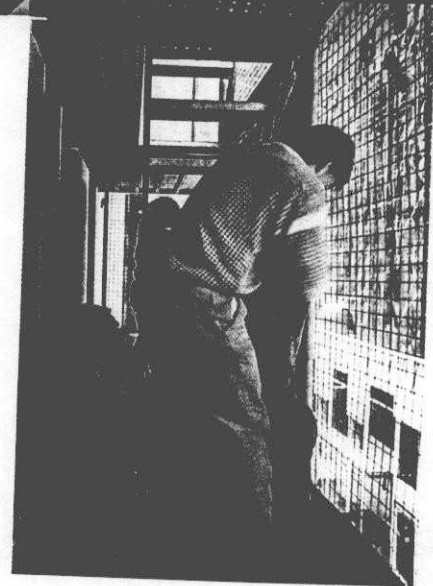


RECOMMENDED TYING IN POSITIONS EVERY 3 BAYS (6.9M) (23'6")
HORIZONTAL AND EVERY 2ND LIFT (4.1M) (13'6") VERTICAL

Due to the superior strength of the PRESTON SCAFFOLD less ties are required as detailed above but engineer approval must be sought.

NOTE: The PRESTON SCAFFOLD has been approved to be erected up to 80m (262') subject to local codes; the scaffold can be erected higher without additional strengthening.

SHADE CLOTH



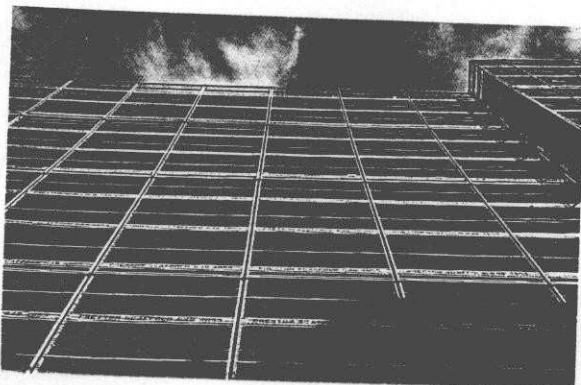
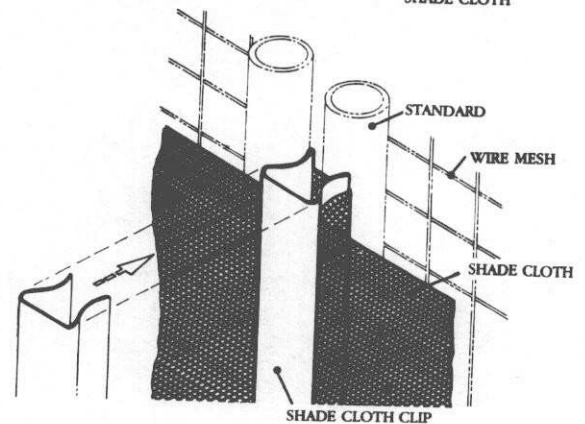
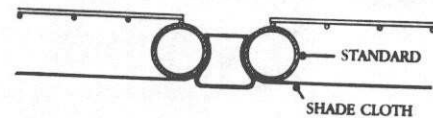
DEBRIS, DUST AND WEATHER PROTECTION

Weather, noise and pollution are major problems for construction companies on the building sites. PRESTON SCAFFOLD has been designed to ensure the safety of erectors, all building workers and the general public.

The PRESTON SCAFFOLD provides ultimate safety on busy city construction sites.

1. All erected scaffold has wire mesh welded on the outside and end of scaffold. Mesh squares are 50mm x 50mm (2" x 2") to ensure that no large objects can fall from platforms.
2. To avoid pebbles, nails, dust and like objects from falling, hessian, plastic or nylon shade cloth can be applied to inside of wire mesh. The Preston shade cloth clips, stretches and secures shade cloth without damaging it, therefore shade cloth can be reused.
3. An external metal kickboard is welded on the inside of wire mesh above platform. Also to minimize the risk of falling debris from platforms a removable kickboard is fitted to inside standards.

PRESTON SCAFFOLD PUTS SAFETY FIRST.



Fixing of shade cloth is made by unrolling the shade cloth horizontally covering the mesh internally and a spring clip as shown is inserted between the cavity of the two tubes. This tightens the shade cloth and no other fixing is needed. The shade cloth can be reused over and over again without damage.

