

# ***AIR-THRUST***®

## **PNEUMATIC FLOORING SYSTEM**



## **THE ULTIMATE SPORTS HALL FLOORING**

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Manager



## AIR-THRUST — THE ULTIMATE SPORTS HALL FLOOR

Since the introduction of "AIR-THRUST" into the Indoor Sports Flooring market in 1977, "AIR-THRUST" has been installed in over 860 major complexes across the length and breadth of the country.

The National Indoor Sports and Training Centre, situated in Bruce A.C.T., is but a fine example of the recognition the "AIR-THRUST" System has achieved in this short period of time, for we proudly boast the fact that Australia's foremost Indoor Sports Stadium has the "AIR-THRUST" Pneumatic Sports Hall Flooring System as the playing surface.

Prior to the selection of the flooring to be installed, the "AIR-THRUST" System was scientifically tested on performance against data contained in the West German Standard DIN 18 032 for Sports Hall Flooring, which is internationally recognised as being the most demanding of all criteria for sports floor construction.

The Centre provides facilities for twenty two indoor sports to national and international standard and has a floor surface area measuring 57m x 37m (2,109m<sup>2</sup>).

Although designed to meet with the requirements in

regulations of the various sporting codes, the National Indoor Sports Centre is used as a venue for numerous activities, including pop concerts.

The majority of indoor sporting centres being designed and constructed today, are not solely for sports usage and in many instances these centres will be the venue for exhibitions through to entrepreneurial use.

The Dunhill International Showjumping Competition was conducted at the National Stadium in October 1982 and to accommodate this spectacular, the "AIR-THRUST" System was covered by 200mm of sand and soil representing a total deadweight of some 800 tonne. In this, it is difficult to imagine the enormous load stresses imposed on the floor.

The results of numerous scientific tests conducted on the "AIR-THRUST" System substantiate the ability of "AIR-THRUST" to withstand enormous loads, such as a number of eight ton Asiatic Elephants standing on one foot for a prolong period of time or an insitu example of a mammoth one hundred and fifty tonne fully loaded retractable seating system in the E.G. Whittlam Indoor Recreation Centre in Liverpool N.S.W.





## SCIENTIFIC TESTING

The "AIR-THRUST" Pneumatic Sports Hall Flooring System has been subjected to scientific testing by our country's foremost testing authorities and the following aspects are just some of the attributes of the "AIR-THRUST" System, which were critically assessed.

- Area Resilience
- Point Resilience
- Resistance to Binding
- Mean Strain Modulus
- Standard Deflection
- Energy Loss
- Thickness Factor
- Area Effect of Standard Deflection
- Floor Tolerance
- Generation of Static Load
- Response to Static Load
- Response to Rolling Loads
- Inflammability — Early Fire Hazard of Materials Report
  - Ignitability
  - Spread of Flame Index
  - Heat Evolved Index
  - Smoke Developed Index
- Reflectance
- Co-efficient of Friction & Sliding Characteristics
- Acoustics
- Sub-floor Ventilation
- Life of Sprung Mounts
- Concealed, In-Floor Fittings & Common Response

Tests have been conducted by Unisearch Limited (University of N.S.W.), the C.S.I.R.O. Building Research Division (Hightett, Victoria), Department of Housing and Construction Experimental Building Station (Ryde, N.S.W.) and Louis A. Challis and Associates Pty. Ltd. (Woolahra, N.S.W.), making "AIR-THRUST" one of the most closely examined flooring systems in the world today.





## CONSIDER THESE FACTS

- \* "AIR-THRUST" provides a 'NATURAL' resilience through its unique construction resulting in improved player performance and comfort underfoot.
- \* The shock absorbing characteristics of "AIR-THRUST" help reduce the risk of sport associated injuries the likes of shin splints, muscle sprains and stress fractures.
- \* True ball response and regular ball bounce with absolutely no dead spots that is experienced on conventional flooring systems.
- \* No mechanical tongue and groove joints to break down from the constant loadings being exerted upon the floor by retractable bleacher seating systems as they roll across the surface or when fully laden with spectators.

\* Extremely economical and easy to maintain with no joints to harbour dust or other abrasive matter which can be dislodged and grind away at the floor finish during Vigorous usage.

\* Significant reduction in noise levels and excellent thermal insulation qualities are features that result from the unique design of the "AIR-THRUST" system.

\* Eliminates many of the structural vibration problems encountered in constructions designed to incorporate suspended slabs over the other areas and reduces impact sound transmission to acceptable levels.

\* Sub-floor ventilation is adequately provided for within the system's own method of construction, thus eliminating the necessity to introduce costly mechanical ventilating.



## BRIEF LIST OF COMPLETED PROJECTS

### NEW SOUTH WALES

<b>SINGLETON HIGH SCHOOL,</b> Cnr. King & York Streets, Singleton. 2330	793m <sup>2</sup>
<b>THE ENTRANCE DISTRICT SPORT &amp; COMMUNITY CENTRE,</b> Bateau Bay Basketball Stadium, The Entrance Road, Bateau Bay. 2261	1,128m <sup>2</sup>
<b>WEST END SPORTS STADIUM</b> Merrowie Street, Griffith. 2680	1,088m <sup>2</sup>
<b>BEATON PARK LEISURE CENTRE,</b> Foleys Road, Gwynville. 2500	957m <sup>2</sup>
<b>ST. JOSEPH'S COLLEGE,</b> Gladesville Road, Hunters Hill. 2110	804m <sup>2</sup>
<b>THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS</b> Mt. Druitt Stake Centre, Lot 11 Pringle Road, Mt. Druitt. 2770	508m <sup>2</sup>
<b>NARROMINE SPORTS CENTRE,</b> Ternain & Meringo Streets, Narromine. 2821.	900m <sup>2</sup>
<b>PHYSICAL FITNESS CENTRE,</b> Army Establishment, Kapooka. 2661	638m <sup>2</sup>
<b>ARMY DEVELOPMENT PHASE 11,</b> Avoca Street, Randwick. 2031	843m <sup>2</sup>
<b>E.G. WHITLAM RECREATION CENTRE,</b> Memorial Avenue, Liverpool. 2170	2,985m <sup>2</sup>
<b>PARKES POLICE CITIZENS BOYS CLUB,</b> 36-40 Pearce Street, Parkes. 2870	741m <sup>2</sup>
<b>PYMBLE LADIES COLLEGE,</b> Avon Road, Pymble. 2073	678m <sup>2</sup>
<b>TARA GIRL'S SCHOOL,</b> Masons Drive, North Parramatta. 2151	1,390m <sup>2</sup>
<b>MARKS PARK INDOOR STADIUM,</b> North Street, Albury. 2640	3,328m <sup>2</sup>

### VICTORIA

<b>BONEGILLA ARMY ESTABLISHMENT,</b> Mess & Recreational Building, Bonegilla. 3694	659m <sup>2</sup>
<b>PARKDALE HIGH SCHOOL,</b> ECA Centre, Warren Road, Mordialloc East. 3195	546m <sup>2</sup>
<b>VICTORIAN SPORTS &amp; OLYMPIC PARK,</b> Swan Street, Melbourne. 3000	2,292m <sup>2</sup>
<b>MELBOURNE GRAMMAR SCHOOL,</b> Domain Road, South Yarra. 2580	583m <sup>2</sup>
<b>BALLARAT COLLEGE OF ADVANCED EDUCATION,</b> Ballarat 3350	720m <sup>2</sup>
<b>ST. PAUL'S SCHOOL,</b> Golf Links Road, Baxter. 3911	220m <sup>2</sup>
<b>ST. LEONARDS GYMNASIUM,</b> South Road, Moorabbin. 3189	661m <sup>2</sup>
<b>GREENWOOD HIGH SCHOOL,</b> ECA Centre Drama Facilities, Balmoral Avenue, Bundoora. 3083	546m <sup>2</sup>
<b>SWINBOURNE COLLEGE OF TECHNOLOGY,</b> 505 Burwood Road, Hawthorn. 3122	126m <sup>2</sup>

**CAMBERWELL CHURCH OF ENGLAND**  
Girls Grammar School,  
Burke Road, Camberwell. 3124.

688m<sup>2</sup>

## AUSTRALIAN CAPITAL TERRITORY

**WESTERN CREEK COLLEGE,**  
Fremantle Drive, Stirling. 2611

704m<sup>2</sup>

**AUSTRALIAN NATIONAL UNIVERSITY**  
Canberra City. 2601

1,263m<sup>2</sup>

**BASKETBALL PAVILLION,**  
CANBERRA SHOWGROUND,  
Flemington Road, Lyneham. 2602

1,923m<sup>2</sup>

**A.C.T. POLICE ACADEMY,**  
Weston. 2611

580m<sup>2</sup>

**ERINDALE CENTRE,**  
McBride Crescent, Wanniasa. 2903

1,695m<sup>2</sup>

**NATIONAL INDOOR SPORTS & TRAINING CENTRE,**  
Battye Street, Bruce. 2617

2,109m<sup>2</sup>

**BRUCE COLLEGE OF TECHNICAL & FURTHER**  
**EDUCATION**

Haydon Drive, Bruce. 2617

658m<sup>2</sup>

**CANBERRA THEATRE CENTRE,**  
London Circuit, Civic 2608.

164m<sup>2</sup>

## QUEENSLAND

**IONA COLLEGE,**  
85 North Road, Lindum. 4178

730m<sup>2</sup>

**CAIRNS AMATEUR BASKETBALL STADIUM,**  
Aumuller Street, Cairns. 4870

590m<sup>2</sup>

**MANSFIELD STATE HIGH SCHOOL,**  
Broadwater Road, Mansfield. 4122

762m<sup>2</sup>

**BURDEKIN AMATEUR BASKETBALL STADIUM,**  
McMillan Street, Ayr. 4807

600m<sup>2</sup>

**UNITING CHURCH,**  
Billington Street, Labrador. 4215

566m<sup>2</sup>

**LANDSBOROUGH CIVIC CULTURAL CENTRE,**  
16A Minchinton Street, Caloundra. 4551

349m<sup>2</sup>

## WESTERN AUSTRALIA

**ST. MARY'S CHURCH OF ENGLAND GIRLS SCHOOL,**  
Elliott Road, Karnup. 6211

613m<sup>2</sup>

**KALGOORLIE RECREATION CENTRE,**  
Brookman Street, Kalgoorlie. 6430

984m<sup>2</sup>

**CHURCHLANDS COLLEGE OF ADVANCED EDUCATION,**  
Pearson Street, Churchlands. 6018

663m<sup>2</sup>

**BALGA COMMUNITY CENTRE,**  
Princess Road, Balga. 6061.

514m<sup>2</sup>

## NORTHERN TERRITORY

**DARWIN SPECIAL EDUCATION CENTRE,**  
Cnr. Trower Road & Henbury Avenue, Casuarina. 5792

196m<sup>2</sup>

**SADADEEN PRIMARY, SPECIAL & PRE**  
**SCHOOL,**

Sadadeen Subdivision, Alice Springs. 5750

141m<sup>2</sup>

**ALAWA COMMUNITY HALL,**  
Lot 8640 Lakeside Drive, Alawa. 5792

120m<sup>2</sup>

**MARRARA INDOOR SPORTING COMPLEX,**  
McMillans Road, Marrara. 5792

1,245m<sup>2</sup>

## SOUTH AUSTRALIA

**MARION RECREATION CENTRE,**  
Rosedale Avenue, Marion. 5043

2,328m<sup>2</sup>

**THE CHURCH OF JESUS CHRIST OF LATTER-DAY**  
**SAINTS,**

413 Tapleys Hill Road, Fulham Gardens. 5024

243m<sup>2</sup>

**SOUTH AUSTRALIA FIRE SERVICES HEADQUARTERS,**  
Wakefield Street, Adelaide. 5000

634m<sup>2</sup>

## TASMANIA

**UNIVERSITY OF TASMANIA, STUDIO THEATRE &**  
**HYTTON HALL,**

Churchill Avenue, Sandy Bay. 7005

373m<sup>2</sup>

**SOMERSET RECREATION CENTRE,**  
Arthur Street, Somerset. 7322

831m<sup>2</sup>



## CONSTRUCTION DETAILS IN BRIEF

The "AIR-THRUST" system has an overall height of 38mm and is constructed in the following manner:—

A secondary vapour proof barrier of .006mm polythene film is laid over the concrete sub-floor and carefully lapped and taped.

The uniquely blended rubber "AIR-THRUST" 'Air Cell' pads (44mm x 44mm x 4mm) are attached to a layer of 12mm thick water proof exterior, structural grade plywood laid at 45° to the wall in brickbond fashion — pads down.

A further layer of plywood is laid cross directionally to the bottom sheet and power nailed together with special fasteners.

The plywood surface is then level sanded and the mosaic parquetry installed.

## MECHANICAL OPERATION

The construction of the "AIR-THRUST" Pneumatic Sports Hall Flooring provides its own method of forced sub-floor ventilation, which is created when any dynamic activity takes place on the floor surface. This activity causes momentary compression of the air beneath the system, which then exhausts to the full perimeter. The unique return of the system is provided by the natural movement of air encapsulated within the fully formed cells of the uniquely blended rubber "AIR-THRUST" 'Air Cell' pads. This movement also results in the natural resilience one experiences underfoot.



## PRACTICAL ADVICE

To the 'layman', all this technical information must be of little significance and we would suggest you 'try before you buy'. Visit any of the numerous centres throughout Australia and experience "AIR-THRUST" for yourself, or speak with fellow players, Stadium Managers from centres with "AIR-THRUST" floors and the executive of the various sporting bodies.

## SPORT SUITABILITY

The "AIR-THRUST" system is installed in numerous complexes where the following sports are played at international competition and training levels.

Badminton	Tennis
Basketball	Table Tennis
Boxing	Volleyball
Calisthenics	Weightlifting
Fencing	Wrestling
Ballroom Dancing	
Indoor Soccer	
Indoor Hockey	
Judo	
Gymnastics	
Handicapped Sports	
Netball	

Our organisation has received many commendations directed at the performance and quality of the "AIR-THRUST" system, which include a number from visiting overseas teams and the executives of the various sporting bodies.

In the instance of Handicapped Sports, we would point out that unlike conventional flooring systems there is no possibility of the "AIR-THRUST" system developing "tram tracks", which can trap the wheels of the competitors chairs, thus exposing the athlete to possible injury.





## INLAID GAMES LINES

To compliment the "AIR-THRUST" System, we have developed a method of application by which it is now possible to install permanently inlaid games lines to every "AIR-THRUST" flooring installation.

Considering the cost of repairs and maintenance of conventional line marking methods over a period of time, add to this the fact that if the floors should ever require a conventional resand, this would then necessitate a complete replacement of conventional line marking systems.

However, with **Thrust Floors** permanently inlaid lines there are no 'on going' costs.

## SKIRTING AND EDGE TRIMS

Depending upon the requirements on each individual project, **Thrust Floors** have available a number of methods by which the "AIR-THRUST" System can be treated at the perimeter or where it abuts other floor finishes.

In each case, the natural movement of the "AIR-THRUST" floor is not restricted in any way other than by design. We are able to provide a fully vented five (5) piece skirting section with vermin protection for the perimeter or aluminium and brass threshold sections to finish off through doorways.

Mat wells can simply be incorporated in the 'Air Thrust' system and finished to suit the specification.

## INFLOOR FITTINGS

Australia's leading manufacturer's of gymnasium equipment have designed a complete range of fittings for exclusive use with the 'Air Thrust' System.

Flush mounted, infloor fittings access covers with parquetry inlay, enable easy access without impairing the performance of the floor are readily available. Only a 4mm brass rim is visible thus causing no distraction to the athlete.

Because of the unique construction of the 'Air Thrust' system it is possible to install removable panels to suit any requirement. These panels are edge trimmed with 3mm brass and no effect is had on the floors response.

## MAINTENANCE

Every "AIR-THRUST" installation is finished to the highest standard of workmanship and only first quality surface finishes applied.

Maintenance to each installation is designed to be simple, yet cost efficient and our Company markets a range of time saving products to ease the burden of day-to-day cleaning of the floor surface.

A concise but easy to follow maintenance recommendation screed is supplied to those involved with the up-keep of the "AIR-THRUST" System and should the instructions be followed, no "AIR-THRUST" floor would ever need to be conventionally resanded.

## ARCHITECTURAL SPECIFICATIONS

### CONCRETE SUB-FLOORS

1. On ground slabs or suspended slabs which span swimming or shower areas shall be constructed with a continuous vapour barrier which effectively protects the base and sides of the slab against the ingress of moisture.
2. The concrete slab is to be set down to accommodate the "AIR-THRUST" flooring system by 38mm for George Hudson's 9mm "Metfoil" mosaic parquet or by 48mm for George Hudson's 19mm "Perfection" block parquet.
3. The surface of the concrete slab shall be smooth and level, free of ridges and short waves and not vary by more than 3mm in 3 metres, and shall generally conform to the minimum requirements of the Australian Standard No. 1261-1262 1972 or as from time to time amended.
4. George Hudson Parquetry Flooring (Sales) Pty. Ltd. shall advise in writing their acceptance of the sub-base prior to commencement of site work.

### VAPOUR BARRIER

Prior to the installation of the "AIR-THRUST" system, the sub-floor is to be vacuumed and an additional vapour barrier is to be supplied and installed over the existing sub-base and lapped and sealed.

### GENERAL

(a) Sports hall floors/or other . . . shall be the "AIR-THRUST" pneumatic flooring system as supplied and installed by **Thrust Floors International Pty.Ltd.**

(b) Plywood shall be 12mm thick 5 ply, waterproof exterior structural plywood for the bottom layer (that to which the pads are to be affixed) and 12mm thick 5 ply, waterproof exterior structural plywood for the top layer (that to which the parquetry is to be affixed).

Size of the plywood sheets is to be 2440mm x 1220mm.

(c) Floor finish shall be **Thrust Floors** select grade 9mm "Metfoil" mosaic parquet or 19mm "Perfection" block parquet in a timber specie as nominated.

Parquetry flooring is to be installed using B.W. Colle T.10 adhesive.

### FLOOR SANDING

After parquet has been installed over the "AIR-THRUST" system for a minimum of 7 days, the floor shall be fine sanded to a smooth, scratch-free surface, carefully broomed and vacuumed in preparation for finishing coats.

### SURFACE FINISHES

As the majority of indoor sporting complexes being built today are designed for a multitude of uses, each project should be considered individually prior to a surface coating being specified.

For your guidance, we make the following recommendations.

1. SPORTS HALL FLOORS which are to be used solely for sporting events should be finished with **three** (3) full coats of Oleo-Resinous timber seal — this finish provides superior tractional qualities and is able to be cut back and recoated as required.
2. MULTI-PURPOSE HALL FLOORS where sport usage is minimal should be finished with **three**(3) full coats of Oleo-Resinous timber seal and then maintained with a high quality spirit based wax.
3. GYMNASIUM FLOORS should be finished with either **three**(3) full coats of Plastic Timber Seal or (3) full coats of high solid moisture cured polyurethane.

## GUARANTEE

Every **Thrust Floors** "AIR-THRUST" Pneumatic Sports Hall Flooring installation is now fully warranted for a full **35 YEAR** period.

Our Guarantee covers both workmanship and materials, which are performed and manufactured in strict accordance with the appropriate Australian Standards.

**Thrust Floors** free advisory service is available to any organisation seeking guidance on all aspects of Sports Hall Flooring and our after sales service is unsurpassed in this industry.

## **AIR-THRUST** **Pneumatic Sports Hall Floors** **The greatest name in Sprung Timber Floors**

by

**THRUST FLOORS International P/L**

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