2.3 Facilities for Jumping Events

The Jumping events are Long Jump, Triple Jump, High Jump and Pole Vault. The facilities required for these are described in Section 2.1.1.2. Further details are given in Sections 2.3.1 to 2.3.4. These facilities preferably should not be on the infield because of the potential safety and event scheduling problems.

2.3.1 FACILITY FOR LONG JUMP (See 2.1.1.2)

2.3.1.1 Layout of the Facility for the Long Jump (Figures 2.3.1.1a and b)

The Long Jump facility includes a runway, a take-off board and a landing area. Usually, it is placed outside the track along one of the straights with two adjacent runways with a landing area at each end, thus allowing competition in either direction by two groups of athletes simultaneously. This is mandatory for Construction Classes I and II.

2.3.1.2 Runway for the Long Jump (Figures 2.3.1.1a and b)

The length provided for the runway shall be 40m min. and is measured from the beginning of the runway to the take-off line. The runway shall be 1.22m ± 0.01m wide. It shall be marked by white lines 0.05m wide or broken lines 0.05m wide, 0.10m long and 0.50m apart. The runway is usually covered with the same surface as the track.

2.3.1.3 Take-off Board for the Long Jump (Figure 2.3.1.1a and Chapter 6)

The take-off board shall be rectangular and shall measure 1.22m ± 0.01m long, 0.20m ± 0.002m wide and not more than 0.10m deep. It shall be coloured white. The surface of the take-off board must be flush with the surface of the runway.

In the case of a runway with a permanent surface, this requires a built-in installation tray made of corrosion-protected metal in which the take-off board can be correctly positioned. During sport-free periods, the take-off board can be removed. If it has a track surface on its reverse side, it can be turned over and used as part of the runway. This makes it possible to combine Long and Triple Jump with two or three take-off boards (which can be used on both sides) on a Triple Jump runway.

(For the take-off board itself, see also Chapter 6.)

2.3.1.4 Landing Area for the Long Jump (Figure 2.3.1.1a)

The landing area must be 7m to 9m long depending on the distance between its nearer end and the take-off line and shall be 2.75m min. wide. Generally, a landing area length of 8m placed 2m from the take-off line is recommended. The landing area shall, if possible, be so placed that the middle of the runway coincides with the middle of the landing area. If two landing areas are situated parallel side by side, the distance between them must be at least 0.30m. If two landing areas are staggered, the separation between the two areas must also be at least 0.30m (Figure 2.3.1.1b).

The landing area should have a border not less than 0.05m wide and 0.30m high, rounded off towards the inside (e.g. wooden plank or concrete border with soft covering) and level with the ground.

The landing area must have a water permeable substructure or a suitable drainage system (draining well or canal connection) and be filled with sand to a depth of not less than 0.30m at the edges and slightly deeper at the centre.

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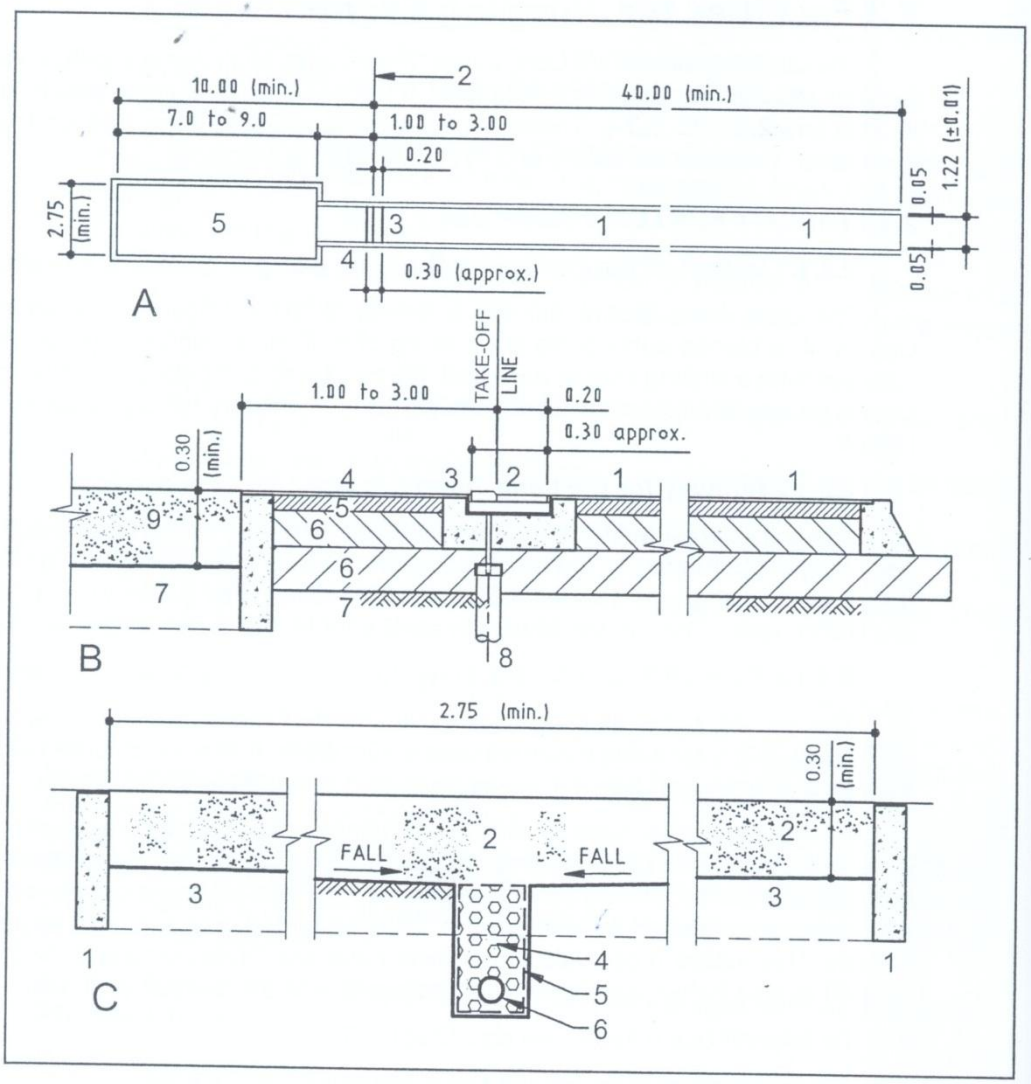

Figure 2.3.1.1a - Facility for the Long Jump (Dimensions in m)

A Layout plan
1 Runway 40m (min.)
2 Take-off line
3 Take-off board
4 Built-in tray
5 Landing area

B Longitudinal section of built-in tray for take-off board
1 Runway
2 Removable take-off board with adjustable legs
3 Built-in tray
4 Synthetic surface
5 Asphaltic concrete layer
6 Gravel base layer
7 Subgrade
8 Tray drainage
9 Landing area

C Cross section of landing area
1 Pit edge
2 Washed river sand 0 to 2mm graining, no organic components, max. 5% of weight up to 0.20mm
3 Subgrade
4 Drainage gravel
5 Geo fabric material
6 Subsoil drainage pipe

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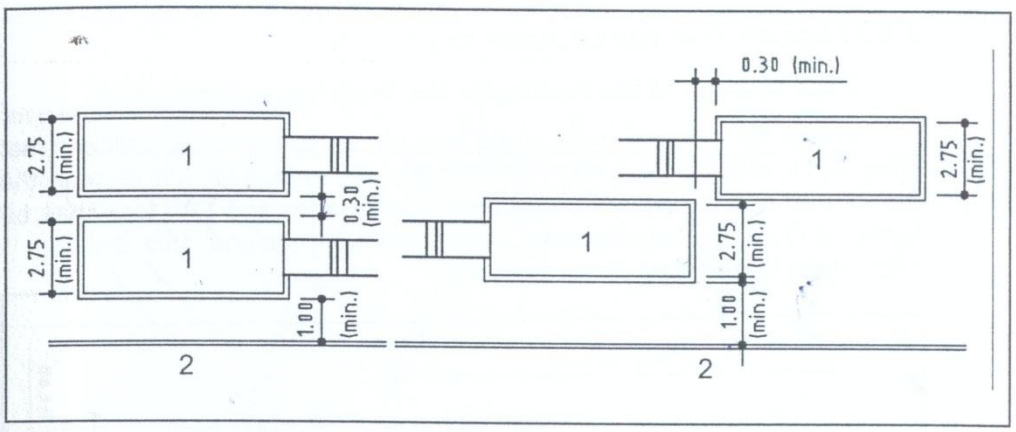

Figure 2.3.1.1b - Minimum distance of parallel situated Long and Triple Jump facilities
(Dimensions in m)

1 Landing area
2 Outer lane

The top edge of the border of the landing area, generally also dictates the level of the sand, which must be level with the take-off board. Tolerances: Landing area border level ± 0.02m compared with the highest part of the take-off board.

2.3.1.5 Safety of the Facility for the Long Jump

For the safety of the athletes, the sand must (to avoid hardening as a result of moisture) consist of washed river sand or pure quartz sand, without organic components, maximum 2mm granules, of which not more than 5% in weight is less than 0.2mm.

It is also important to ensure that the top edge of the board of the landing area is designed using flexible material and rounded off. Take-off boards installed permanently in synthetic runways are often the cause of accidents because the unevenness which necessarily occurs in the surface between them and the runway cannot be levelled out. This can be alleviated by using adjustable take-off boards placed in metal trays.

On all occasions, the overall distances between the take-off board and the far end of the landing area must be complied with.

The area beyond end of the landing area should be level and obstacle-free to allow athletes to run through the landing area.

If the horizontal jumps facilities are on the infield area, long throws should be scheduled not to clash with the use of the jump facilities for warm up and competition.

2.3.1.6 Suitability for Competition and Official Acceptance of the Facility for the Long Jump

Long Jump facilities must conform to the specifications. This can be established when inspecting the 400m Standard Track.

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2.3.2 FACILITY FOR TRIPLE JUMP (See 2.1.1.2)

2.3.2.1 Layout of the Facility for the Triple Jump (Figure 2.3.2.1)

Except for the placement of the take-off board, the same facilities are used for Triple Jump as for Long Jump. For international competition, it is recommended that the take-off board shall be not less than 13m for men and 11m for women from the nearer end of the landing area. For other competitions, this distance shall be appropriate for the level of competition.

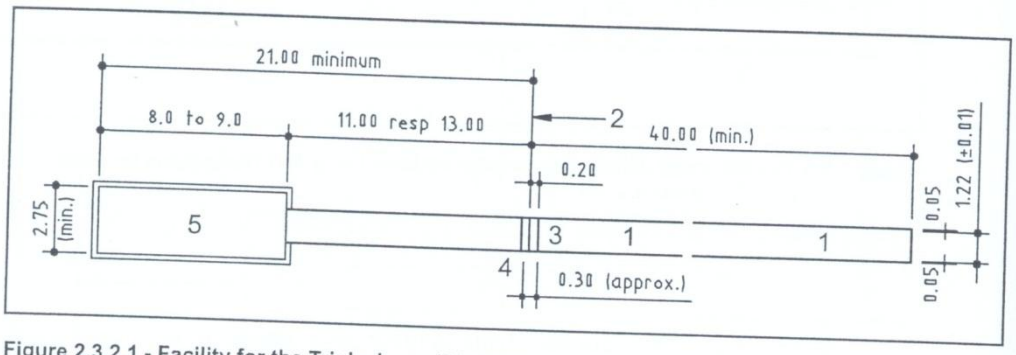

Figure 2.3.2.1 - Facility for the Triple Jump (Dimensions in m)

1 Runway 40m (min.)
2 Take-off line
3 Take-off board
4 Built-in tray
5 Landing area

2.3.2.2 Runway for the Triple Jump (Figure 2.3.2.1)

Section 2.3.1.2 also applies to the runway for the Triple Jump with the exception of the position of the take-off line.

2.3.2.3 Take-off Board for the Triple Jump (Figures 2.3.1.1a and Chapter 6)

Section 2.3.1.3 also applies to the take-off board for the Triple Jump. The integration of the Triple Jump into the facility for Long Jump requires a removable take-off board as described under Section 2.3.1.3. For Triple Jump, Sections 2.3.1.4 to 2.3.1.6 also apply.

2.3.3 FACILITY FOR HIGH JUMP (See 2.1.1.2)

2.3.3.1 Layout of the Facility for the High Jump (Figure 2.3.3.1)

The High Jump facility includes a semicircular runway, a take-off area, two uprights with cross bar and a landing area. By temporarily removing sections of the kerb, it is possible to use the oval track as part of the runway. For major championships, the High Jump facility must be large enough so that two High Jumps can be conducted simultaneously.

2.3.3.2 Runway for the High Jump (Figure 2.3.3.1)

The semicircular runway, with a radius of at least 20m, will permit approaches from every direction. If it is necessary to remove the kerb temporarily in order to be

2.3.4 FACILITY FOR POLE VAULT (See 2.1.1.2)

2.3.4.1 Layout of the Facility for the Pole Vault (Figure 2.3.4.1)

The Pole Vault facility includes a runway, a box for inserting the pole, two uprights with crossbar and a landing area. It can be located either outside the track, parallel to one of the straights or within one of the segments. When located outside the track, it is usually constructed as a "symmetrical facility" with one landing area in the middle of two runways. When located within a segment, it is usually constructed with two parallel runways with positions for landing areas at each end.

For major championships (Construction Categories I and II), the Pole Vault facility must provide for two Pole Vaults to be conducted simultaneously in the same direction, preferably side by side and with same length of runway for each.

2.3.4.2 Runway for the Pole Vault with Box (Figure 2.3.4.1)

The length provided for the runway shall be 40m min. The runway is measured from beginning of the runway to the 0-line. The runway shall be 1.22m ± 0.01m wide. It shall be marked by white lines 0.05m wide or broken lines 0.05m wide with a length of 0.1m and a distance of 0.5m. At the end of the runway, the box must be mounted flush with the runway and installed such that the top inside edge of its end board lies on the 0-line and at the same height. The 0-line shall be marked by a white line, 0.01m wide which extends beyond the outside edges of the uprights.

The dimensions of the box must comply with Figure 2.3.4.1. For convenience, it should be fitted with a drainage pipe and a cover which is level with the ground.

The runway is usually covered with the same surface as the track.

2.3.4.3 Uprights for the Pole Vault (See Chapter 6)

The two uprights must be able to be installed on horizontal bases, level with the O-line, such that each can be moved from the 0-line not less than 0.80m towards the landing area (e.g. on a built-in double rail) or in fixed sockets with movable cross bar supports.

They must be not less than 5.20m apart with approximately 0.10m between each upright and the landing mat. The lower part of the uprights shall be covered with appropriate padding to protect the athletes and their poles. The landing mats shall be recessed to take the uprights and any horizontal bases. Separate protective pads shall be installed as necessary.

2.3.4.4 Landing Mats for the Pole Vault (See Chapter 6)

With the exception of the dimensions, Section 2.3.3.4 shall apply for the landing mats. For major international competitions, the landing area shall not be smaller than 6.00m long (excluding the front pieces) x 6.00m wide x 0.80m high. It may be placed on a 0.10m high grid. The front pieces must be at least 2m long. The sides of the landing area nearest to the box shall be placed 0.10m - 0.15m from the box and shall slope away from the box at an angle of approximately 45°. For other competitions, the landing area should measure not less than 5.00m long (excluding the front pieces) x 5.00m wide.

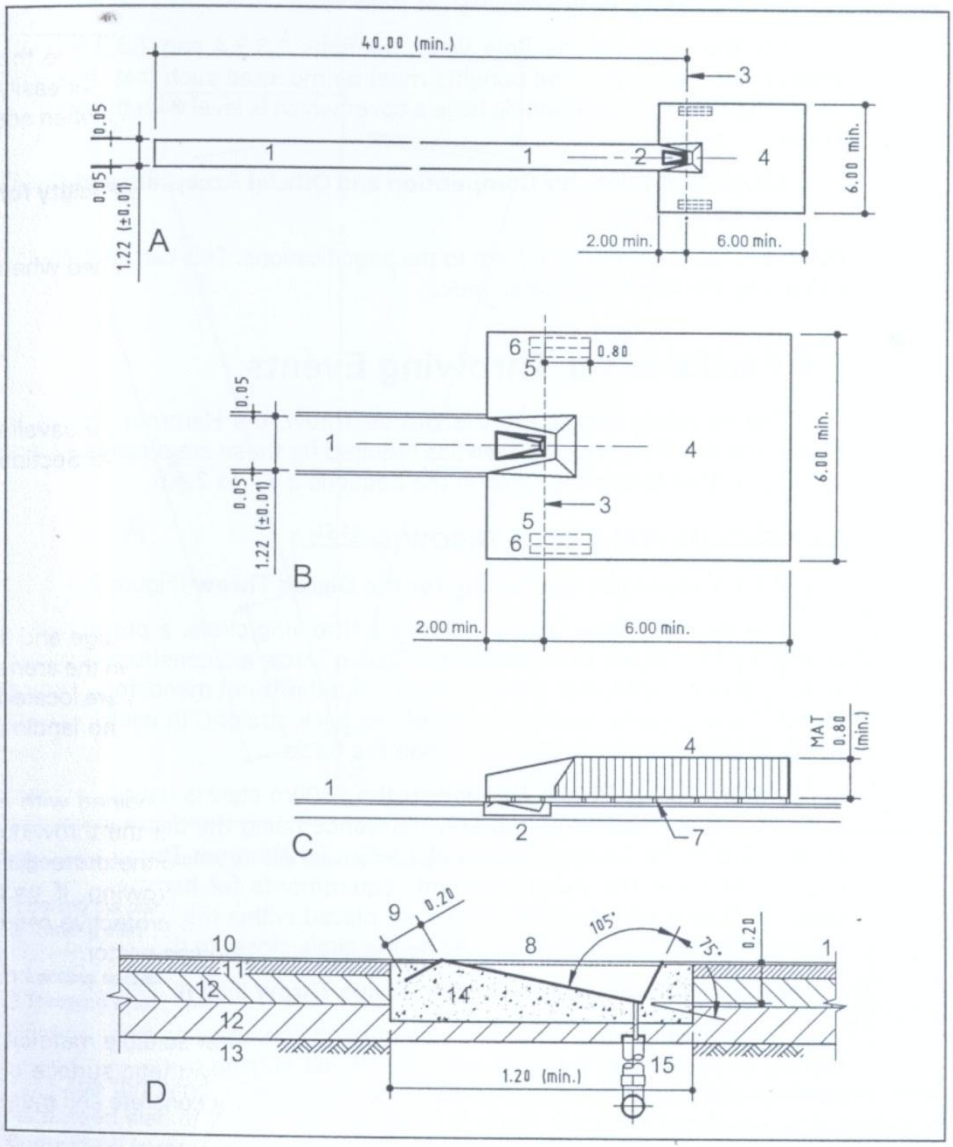

Figure 2.3.4.1 - Facility for the Pole Vault (Dimensions in m)

A Layout plan
B Detailed layout plan

1 Runway
2 Take-off box
3 0-line
4 Landing mat
5 Installation zone or ground sockets for uprights
6 Protective pad
7 Grid
8 Cover plate

C Longitudinal section
D Longitudinal section of the take-off box

9 Flange
10 Synthetic surface
11 Asphaltic concrete
12 Gravel base layer
13 Subgrade
14 Concrete
15 Drainage pipe

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2.3.4.5 Safety of the Facility for Pole Vault

For the safety of the Pole Vault, Sections 2.3.3.4 and 2.3.3.5 relating to the landing mat shall apply. The uprights must be mounted such that they are not easily tilted. The Pole Vault box should have a cover which is level with the ground when not in use.

2.3.4.6 Suitability for Competition and Official Acceptance of the Facility for the Pole Vault

Pole Vault facilities must conform to the specifications. This can be established when inspecting the 400m Standard Track.

2.4 Facilities for Throwing Events

The throwing events are the Discus Throw, the Hammer Throw, the Javelin Throw and the Shot Put. The facilities required for these are described under Section 2.1.1.3. Further details are listed in the Sections 2.4.1 to 2.4.5.

2.4.1 FACILITY FOR DISCUS THROW (See 2.1.1.3)

2.4.1.1 Layout of the Facility for the Discus Throw (Figure 2.4.1.1)

The Discus Throw facility includes a throwing circle, a protective cage and a landing sector. Usually two facilities for Discus Throw are constructed within the arena so as to take advantage of wind conditions but this is not mandatory. They are located within the segments near the ends of the back straight. In each case, the landing sector is located in the grass area inside the track.

The facility for Discus Throw near the 1500m start is usually combined with a facility for Hammer Throw, the only difference being the diameter of the throwing circle is 2.50m for Discus Throw and 2.135m for Hammer Throw and the protective cage must meet the more stringent requirements for hammer throwing. If two separate Discus and Hammer circles are placed within the hammer protective cage then the Discus Throw circle should be the circle closer to the landing sector.

2.4.1.2 Throwing Circle for the Discus Throw (Figure 2.4.1.2)

The throwing circle shall be made of band iron, steel or other suitable material, the top of which shall be flush with the ground outside or the synthetic surface or concrete surround. The interior of the circle shall be constructed of concrete and must not be slippery.

The surface of the interior shall be level and 0.02m ± 0.006m lower than the upper edge of the rim of the circle. The inside diameter of the circle shall be 2.50m ± 0.005m. The rim of the circle shall be at least 6mm thick, 70mm to 80mm deep and painted white. The centre of the circle through which all performances are measured shall be marked. (This is best done using a brass tube with a 4mm inside diameter laid flush with the surface of the circle). In addition, at the edge of the throwing circle, three or more evenly distributed, non-corrodible drainage pipes (e.g. brass pipe with a 20mm diameter) should be laid flush with the surface of the circle and in such a way that they reach down to the water permeable substructure or can be connected to a drainage system.

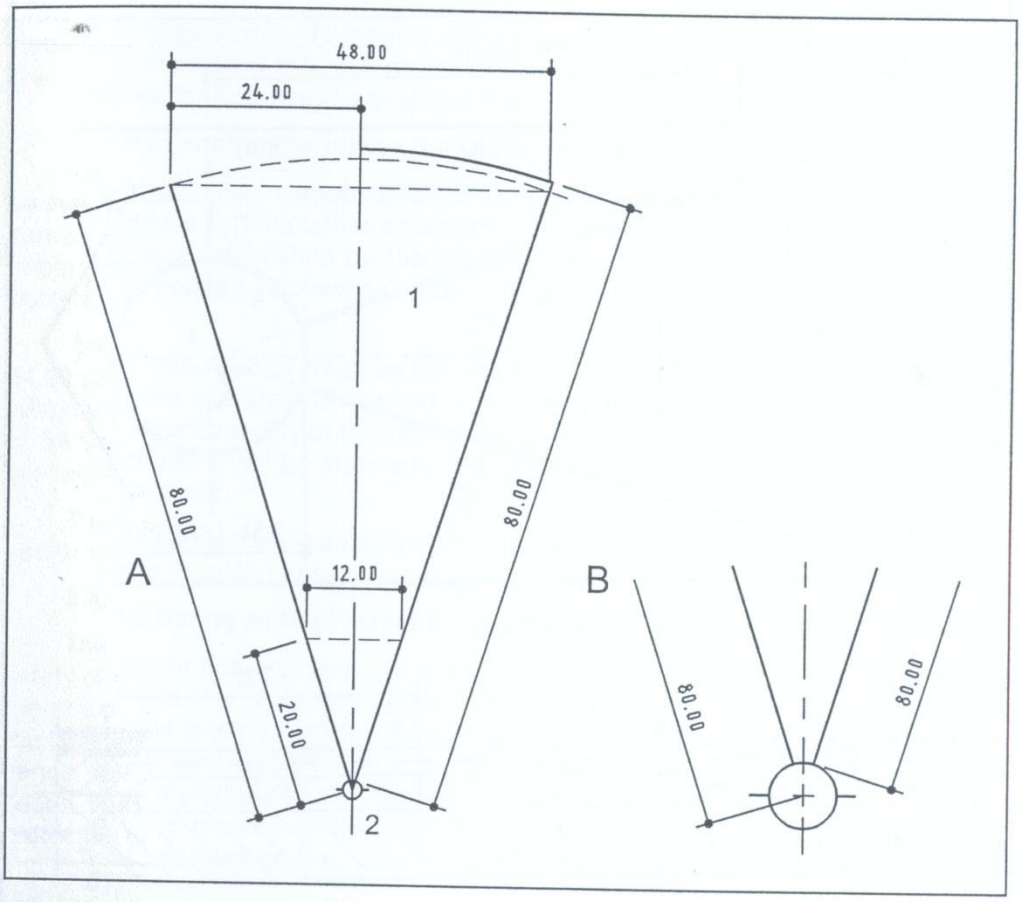

Figure 2.4.1.1 - Facility for the Discus Throw (Dimensions in m)

A Setting out plan
B Marking plan

1 Landing sector
2 Throwing circle

The throwing circle can be made of a minimum 0.15m thick welded wire mesh reinforced slab of 25MPa compressive strength concrete which lies on a frost-proof supporting layer. The throwing circle should be fixed when the concrete slab is laid. The circle rim must be radially braced so that the rim will not distort when the concrete is vibrated against it. The top surface of the concrete slab (= throwing area) must be finished with a smooth wood float for sufficient traction. For 1m³ of 25MPa compressive strength concrete the following quantities are required: 300 kg of cement, 135 l of water and 1865 kg of 0-20mm natural coarse aggregate. This yields a raw concrete weight of 2300 kg/m³. If a material other than concrete is used for the slab, its surface properties must be similar to those of concrete. A white line 0.05m wide and 0.75m min. long shall be marked on either side of the circle. The rear edge of the white line shall form a prolongation of a theoretical line through the centre of the circle at right angles to the centre line of the landing sector.

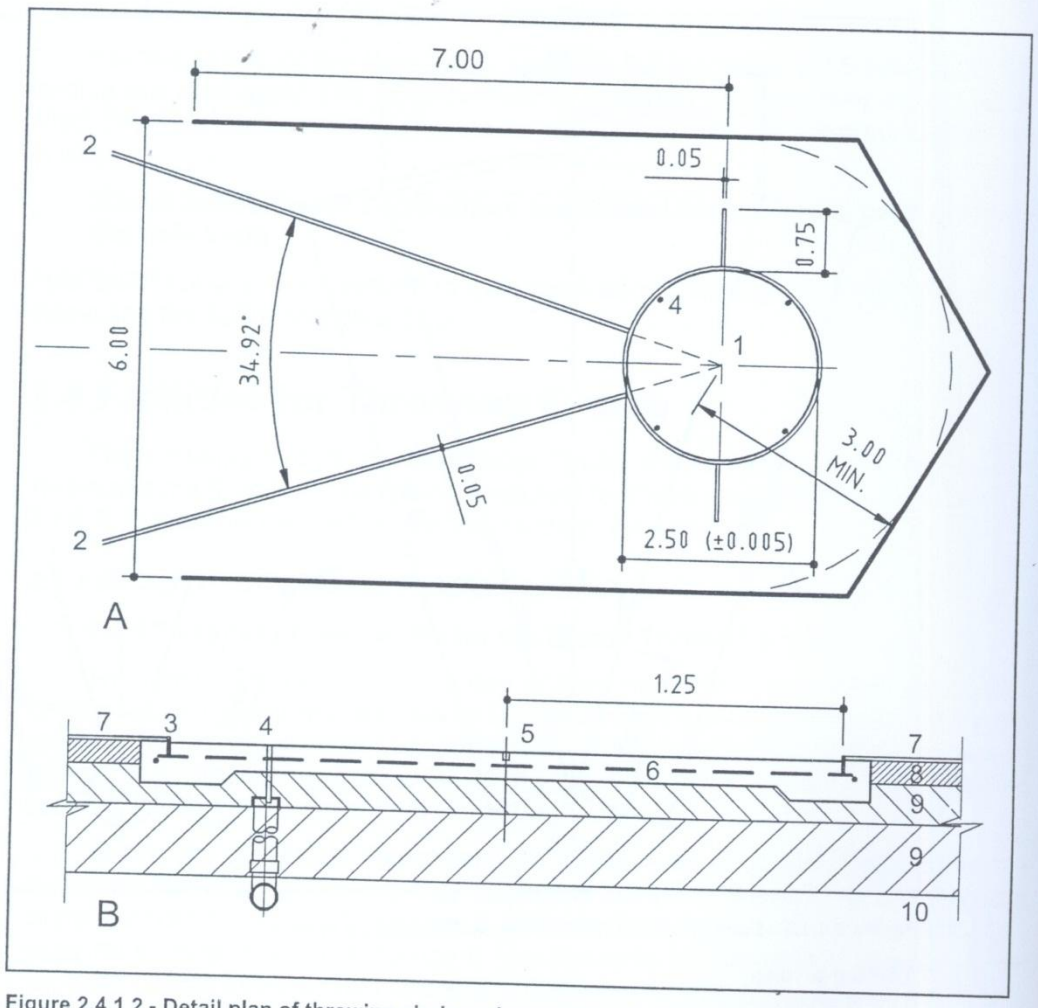

Figure 2.4.1.2 - Detail plan of throwing circle and cage siting for the Discus Throw
(Dimensions in m)

A Layout plan
B Section through throwing circle

1 Centre point (intersection point of setting out plan)
2 Marking for the landing sector
3 Circular metal rim
4 Drainage pipe
5 Centring hole 4mm diameter (brass tube)
6 Concrete base with reinforcing mesh
7 Synthetic surface
8 Asphaltic concrete
9 Gravel base layer
10 Subgrade

2.4.1.3 Safety Cage for the Discus Throw (Figure 2.4.1.2 and Chapter 6)

Frequently discus and hammer is thrown from a combined facility. Therefore in those instances the higher standards required for hammer throwing apply to the

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protective cage design. To provide greater safety it may be desirable to extend the netting on the side of the cage nearer to the track further than 7m from the centre of the circle and/or increase the height of the netting for the last 2m.

2.4.1.4 Landing Sector for the Discus Throw (Figure 2.4.1.1)

The landing sector shall consist of cinders or grass or other suitable material with an even surface soft enough to ensure that the place of the initial fall of the implement can be clearly established by the judges. The landing surface may not allow the implement bounce backwards, thus creating a risk that the measuring point is obliterated.

The landing sector must be laid from the middle of the circle with an angle of 34.92 degrees and shall be marked by 0.05m wide white lines, the inside edges of which form the boundary of the sector. The length of the sector shall be 80m. Its angle of 34.92 degrees will be attained if the two sector lines at a distance of 80m are spaced 48m apart.

The maximum allowance for the overall downward inclination of the landing sector, in the throwing direction at any point, shall not exceed 0.1%.

2.4.1.5 Safety of the Facility for the Discus Throw

The layout and erection of the protective cage are especially important for the safety of the facility for Discus Throw. It is important to ensure the correct position of the axis of the landing sector in relation to the opening of the cage. For the safety of the facility for the Discus Throw, care must be taken to ensure that nobody enters the danger zone during the throw. Therefore additional fencing at least 1.00m outside the sector lines is recommended. This fence also arrests skidding implements. The protective cage must be checked before each competition to ensure correct assembly and condition.

The cage must be correctly operated throughout training, warm-up and competition.

2.4.1.6 Suitability for Competition and Official Acceptance of the Facility for the Discus Throw

Discus throw facilities must conform to the specifications. This can be established when inspecting the 400m Standard Track.

2.4.2 FACILITY FOR HAMMER THROW (See 2.1.1.3)

2.4.2.1 Layout of the Facility for the Hammer Throw (Figure 2.4.2.1)

The Hammer Throw facility includes a throwing circle, a protective cage and a landing sector. It is usually combined with the facility for Discus Throw. Section 2.4.1 applies.

2.4.2.2 Throwing Circle for the Hammer Throw (Figure 2.4.2.2)

For the throwing circle Section 2.4.1.2 shall apply in general with the following exceptions:

The diameter of the throwing circle is 2.135m ± 0.005m. For a combined facility for Discus and Hammer Throw, the diameter of the throwing circle is 2.50m ± 0.005m.

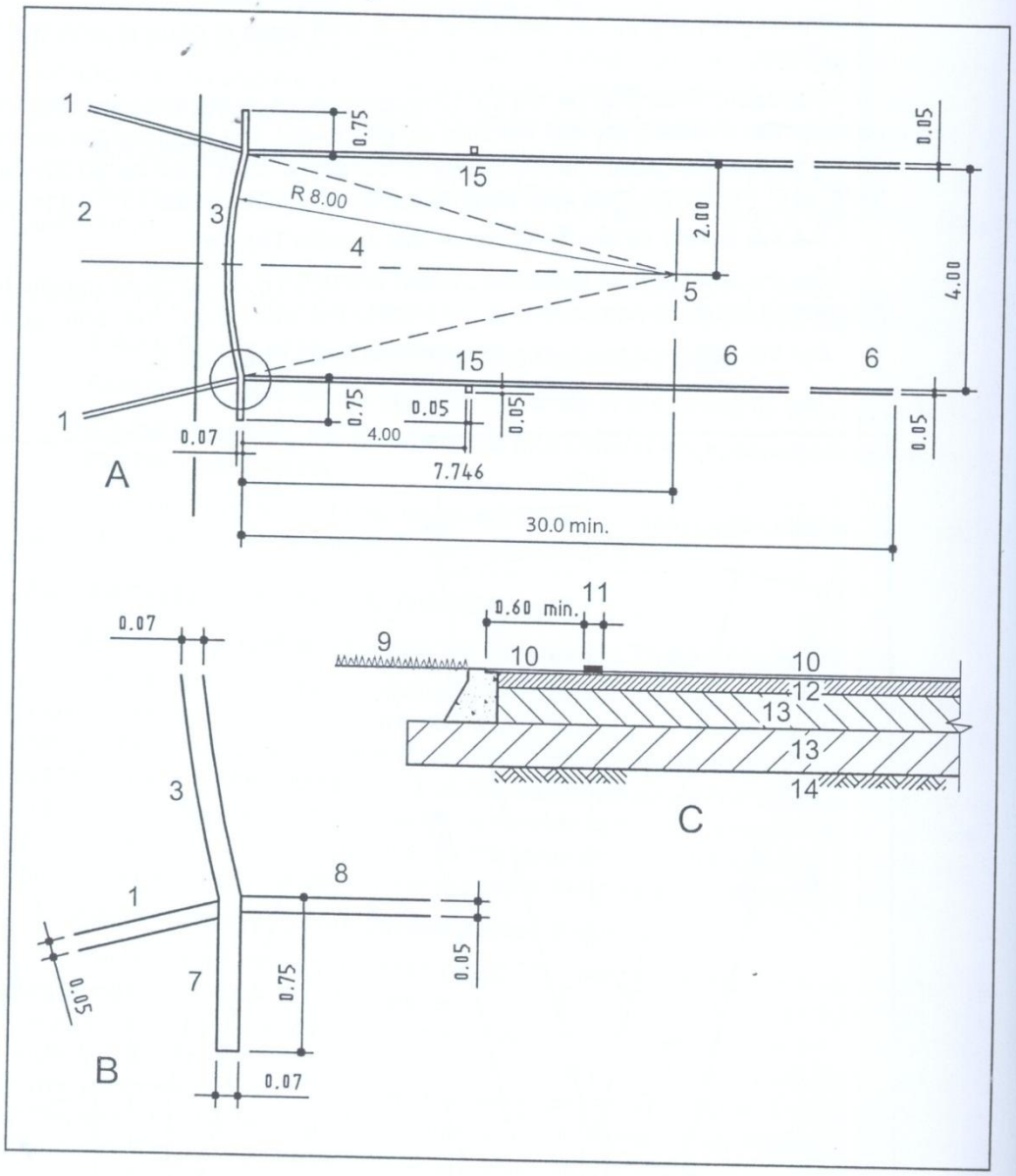

Figure 2.4.3.2 - Runway and throwing arc for the Javelin Throw (Dimensions in m)

A Layout plan
B Detail
C Section

1 Marking for throwing sector
2 Landing area
3 Throwing arc
4 Reinforced area of runway
5 Centre point = intersecting point of setting out plan
6 Runway
7 Marking of extension of throwing arc
8 Marking of lateral border of runway
9 Turf surface
10 Synthetic surface
11 Throwing arc marking
12 Asphaltic concrete
13 Gravel base layers
14 Subgrade
15 White squares 0.05mx0.05m

2.4.3.6 Suitability for Competition and Official Acceptance of the Facility for the Javelin Throw

Javelin throw facilities must conform to the specifications. This can be established when inspecting the 400m Standard Track.

2.4.4 FACILITY FOR THE SHOT PUT (See 2.1.1.3)

2.4.4.1 Layout of the Facility for the Shot Put (Figure 2.4.4.1)

The Shot Put facility includes a throwing circle, a stop-board and a landing sector.

At least two facilities are usually constructed at one end of the arena to allow simultaneous competition by two groups of athletes under similar conditions. The circles are located within the segments dependent upon the location of other Field Event facilities. The landing sector is usually located in the grass area inside the track.

2.4.4.2 Throwing Circle for the Shot Put (Figure 2.4.4.2)

For the throwing circle, Section 2.4.1.2 shall apply in general with the following exception:

The inside diameter of the throwing circle is 2.135m ± 0.005m.

2.4.4.3 Stop Board for the Shot Put (Figure 2.4.4.2 and Chapter 6)

The stop board shall be painted white and made of wood or other suitable material in the shape of an arc so that the inner edge coincides with the inner edge of the circle. It shall be placed midway between the sector lines and be firmly fixed to the ground. It shall be 1.21m ± 0.01m long on the inside. The width at the narrowest point is 0.112m ± 0.002m and the height is 0.10m ± 0.002m measured above the adjoining surface of the circle when the stop board is firmly in position.

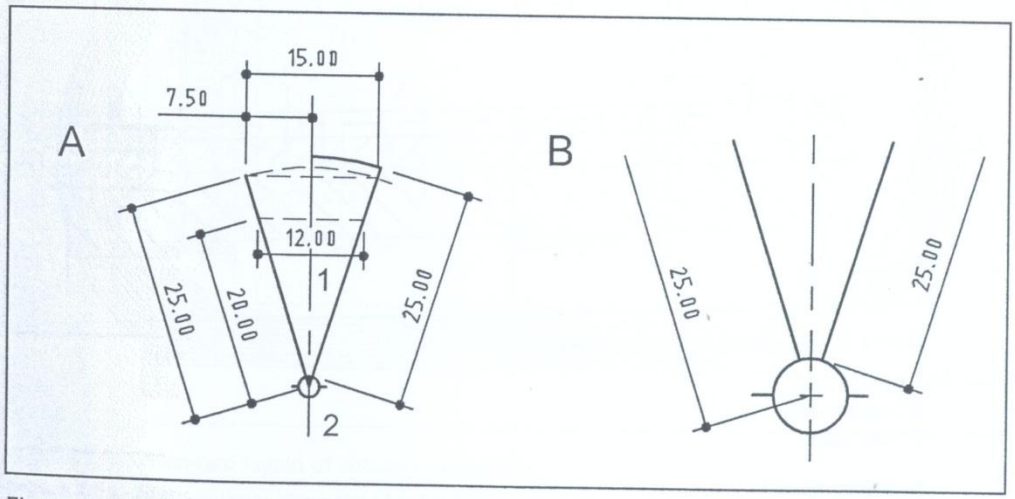

Figure 2.4.4.1 - Facility for the Shot Put (Dimensions in m)

A Setting out plan
B Marking plan

1 Landing sector
2 Throwing circle

2.4.4.4 Landing Sector for the Shot Put (Figure 2.4.4.1)

For the landing sector, Section 2.4.1.4 shall apply in general with the following exceptions:

The length of the sector is 25.00m. The angle of 34.92 degrees will be attained if the two sector lines, at a distance of 25.00m, are spaced 15m apart.

2.4.4.5 Safety of the Facility for the Shot Put

For the safety of the facility for the Shot Put, care must be taken to ensure that nobody enters the landing sector during the throw.

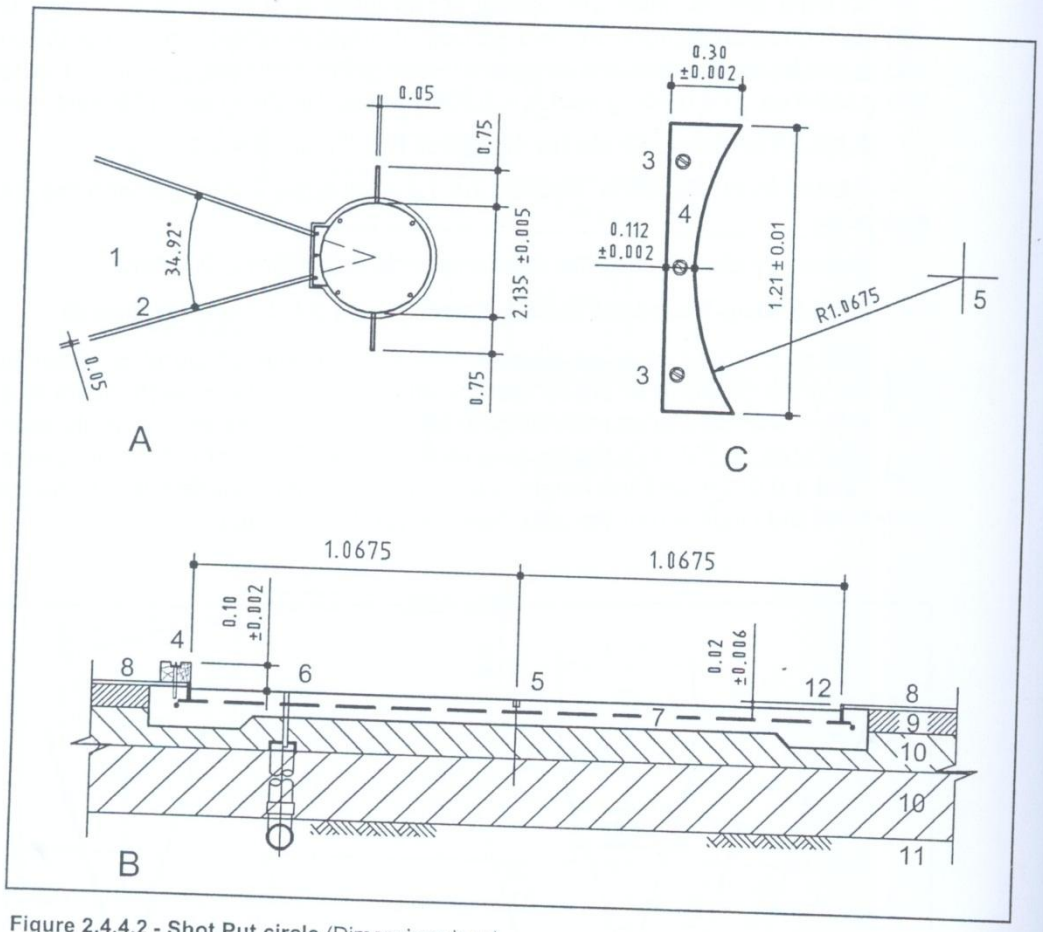

Figure 2.4.4.2 - Shot Put circle (Dimensions in m)

A Layout plan
B Detail section
C Stop board

1 Landing sector
2 Marking for the landing sector
3 Fastening attachment
4 Stop board
5 Centring hole 4mm diameter (brass tube)
6 Drainage pipe
7 Concrete base with reinforcing mesh
8 Synthetic surface
9 Asphaltic concrete
10 Gravel base layer
11 Subgrade
12 Circular metal rim