35th ASIAN RACING CONFERENCE
HONG KONG 2014

Evaluating and Selecting a Running Rail

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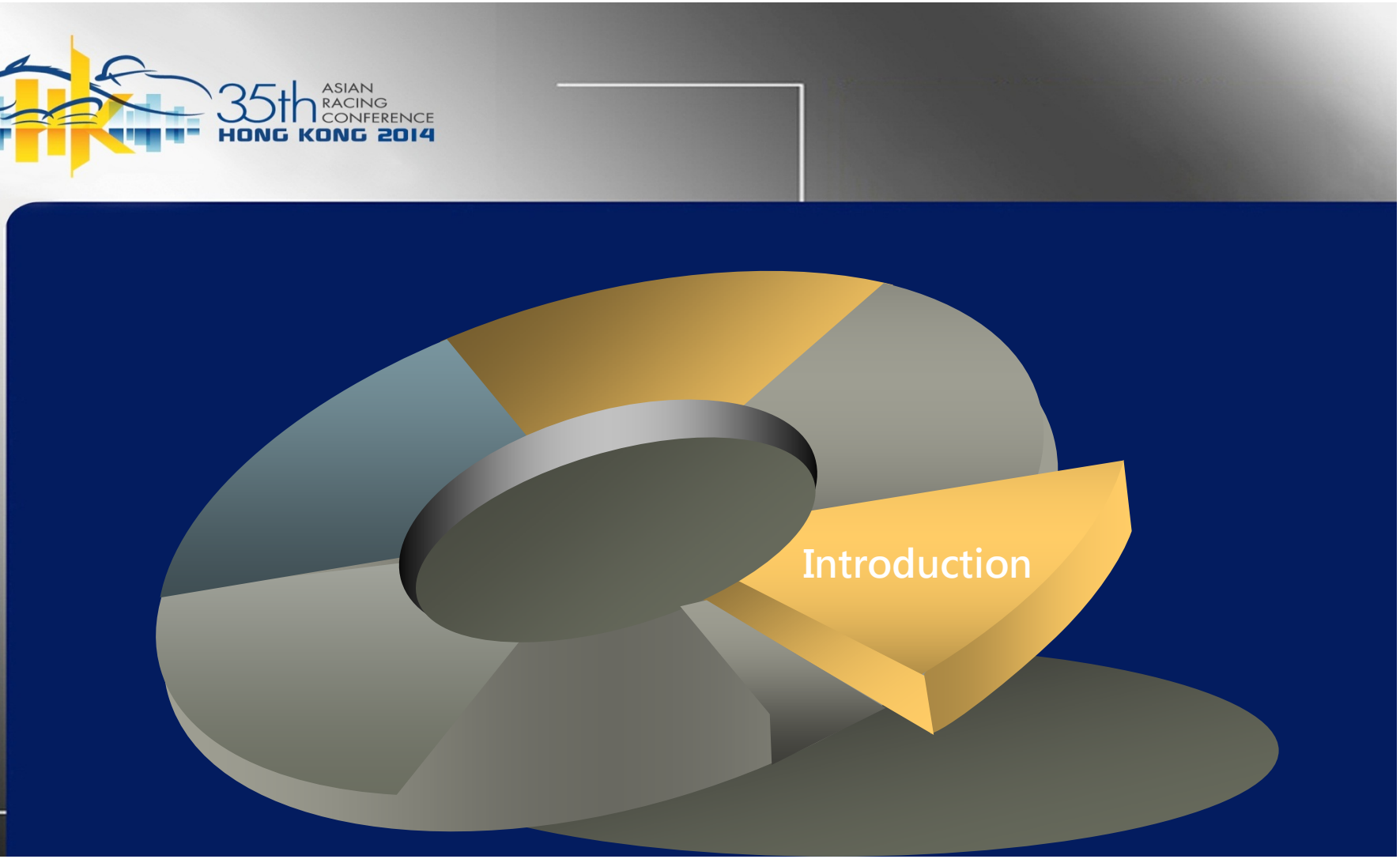


Evaluating and Selecting a Running Rail

General function's of a running rail

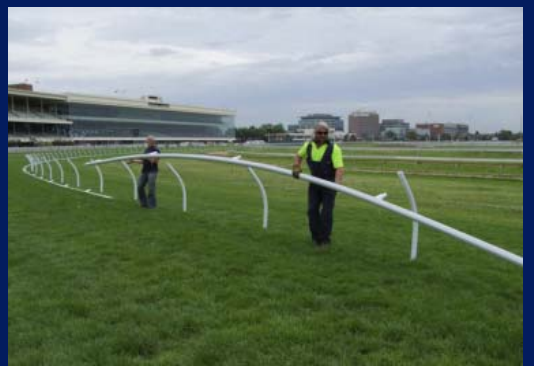
- Define the racing surface safely
- Barrier that horses are less likely to challenge or run into
- Strong
- Attractive
- Easily moved
- Crowd Barrier (outside rail)

Evaluating and Selecting a Running Rail

- Material's used for a running rail

  It can be made from wide variety of materials, depending upon permanent or moveable.

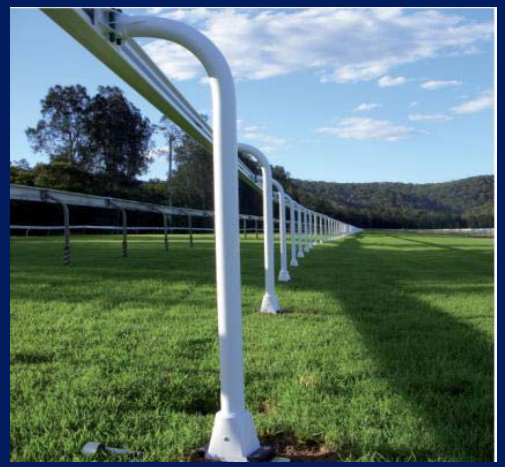
  - ❖ Aluminum
  - ❖ Steel
  - ❖ PVC



Evaluating and Selecting of a Running Rail

Components of a running rail

- Rails - Horizontal guard line for race horses
- Posts - Supporting backbone of the whole rail system
- Joints - Connection section between rails, posts and ground



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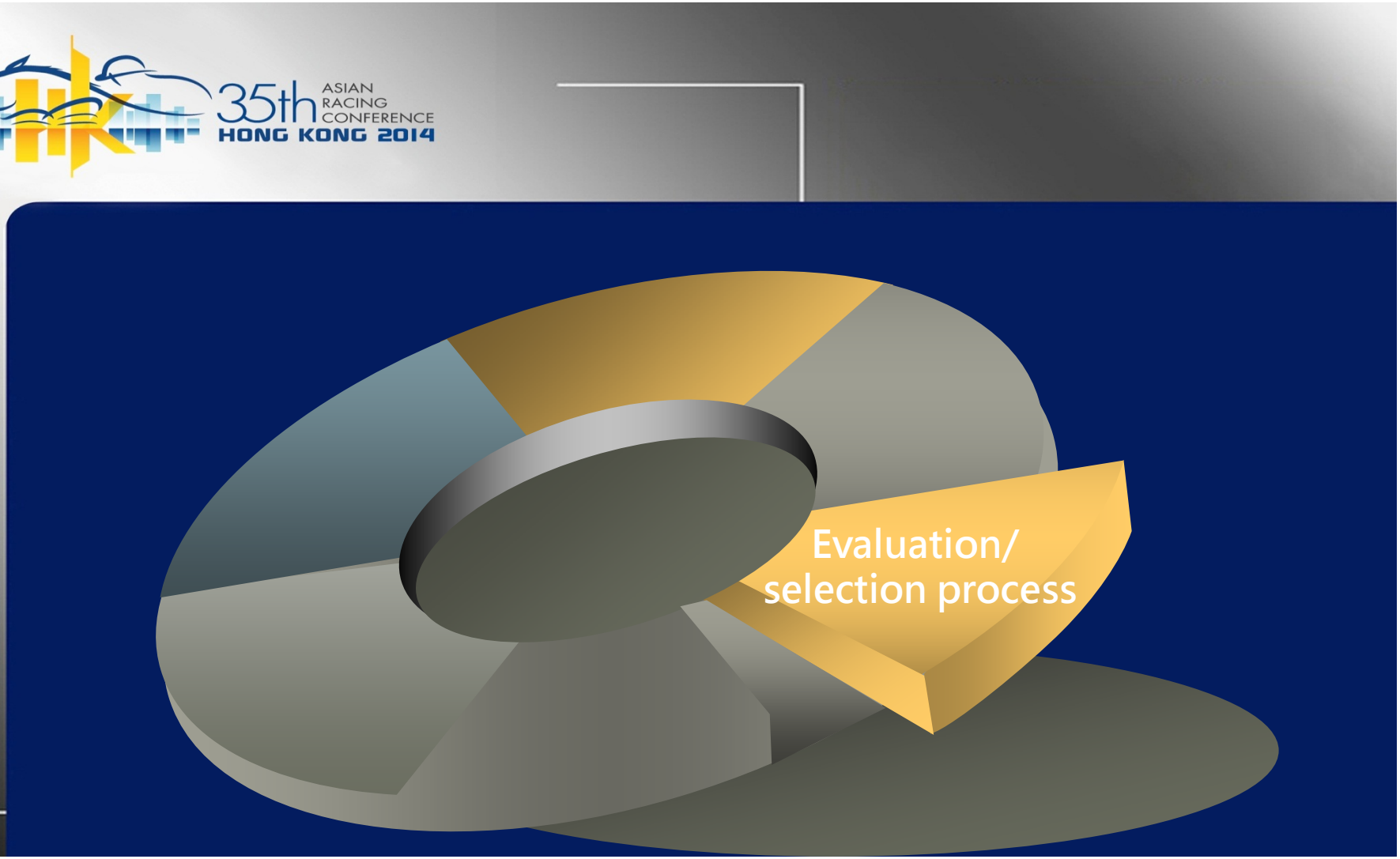
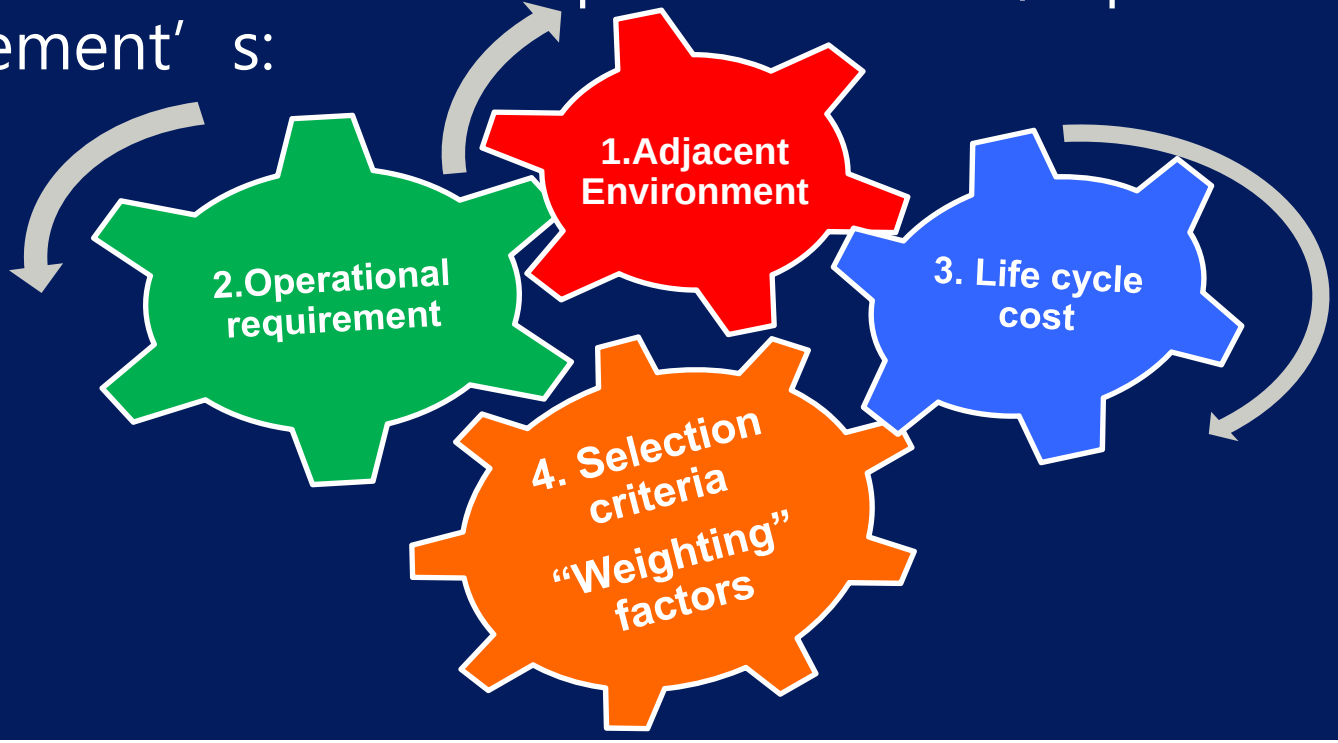


Evaluating and Selecting a Running Rail

Evaluation & Selection process of a running rail

Each racecourse has their particular user / operational requirement’ s:



Evaluating and Selecting a Running Rail

Selection criteria of a running rail

1. Adjacent environment

+

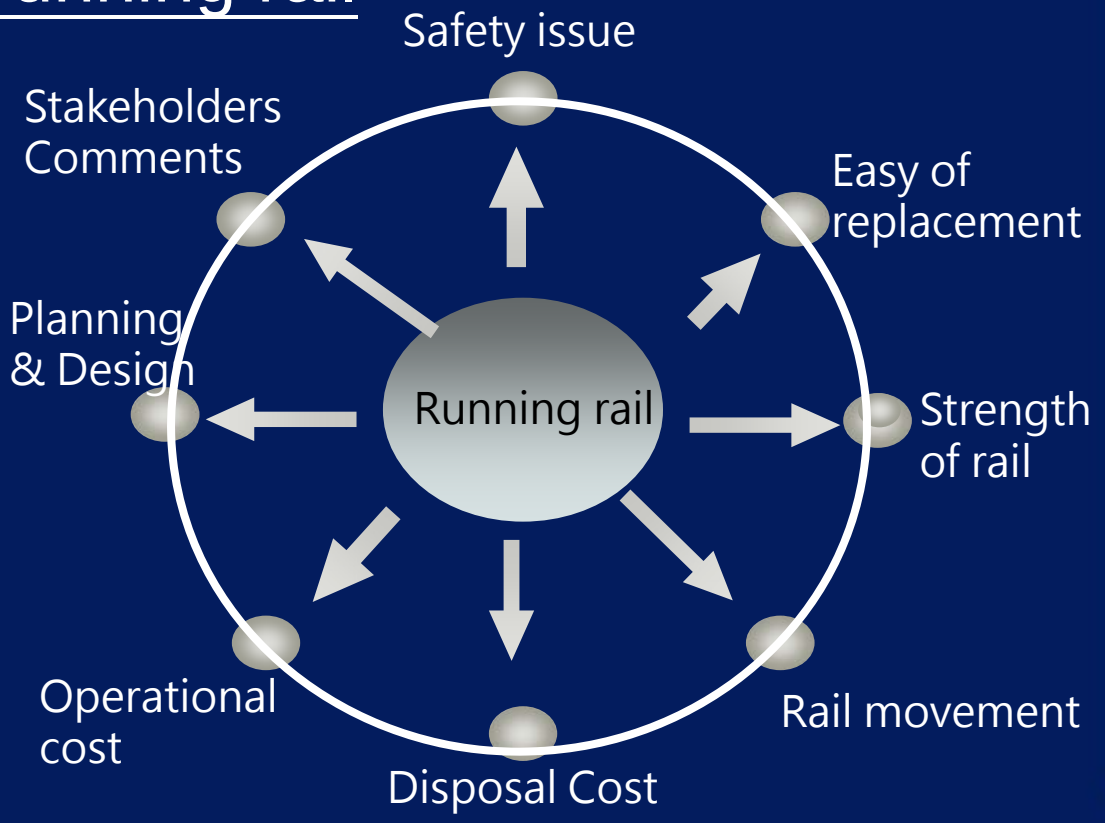
2. Operational requirement

+

3. Life cycle cost

↓

4. Selection criteria "Weighting" factors



Evaluating and Selecting a Running Rail

Evaluation & Selection process of a running rail

- Evaluation by different weighting items

1. Adjacent environment
+
2. Operational requirement
+
3. Life cycle cost

4. Selection criteria "Weighting" factors

Items	Weighting (example)
Safety issue	20%
Stakeholders Comments	20%
Strength of rail	20%
Easy of replacement	10%
Rail movement	10%
Planning & Design	5%
Operational cost	10%
Disposal Cost	5%

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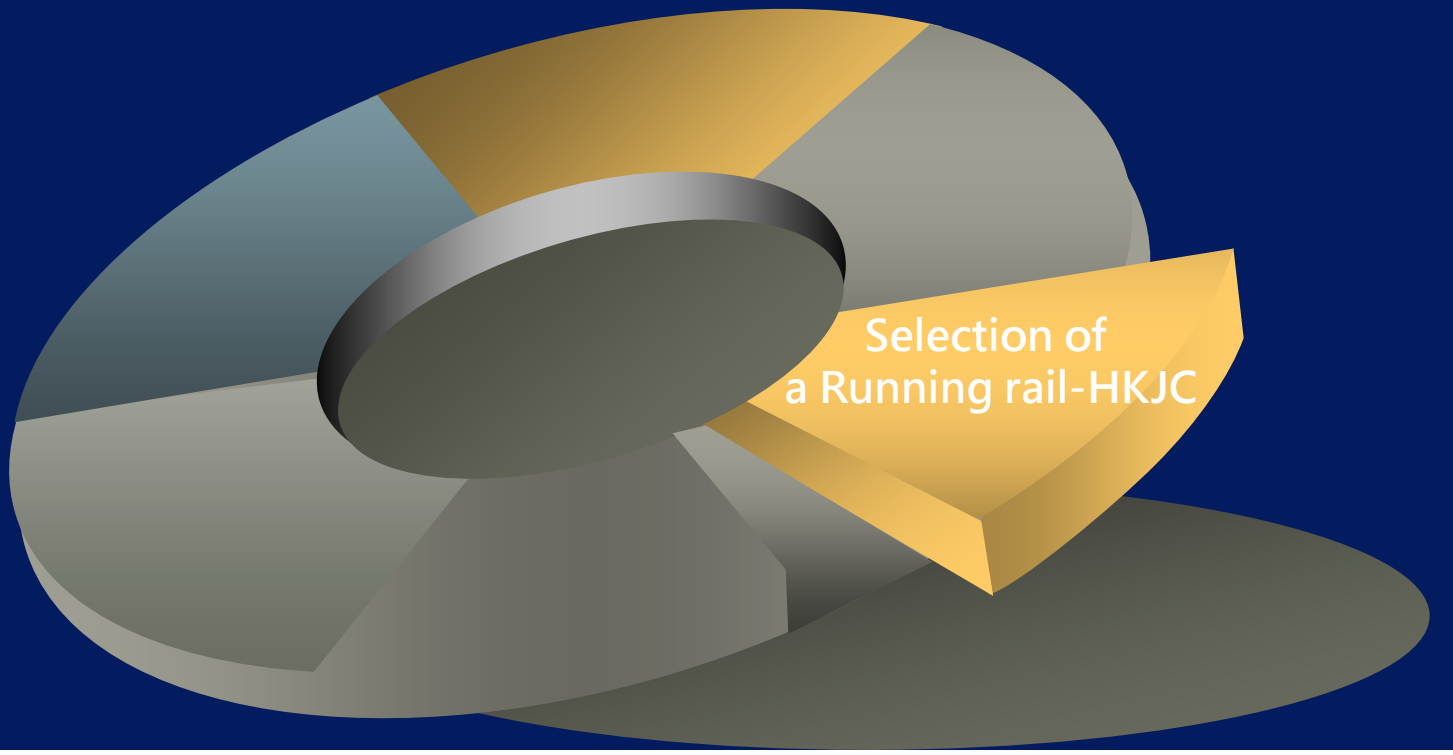


Evaluating and Selecting a Running Rail

Hong Kong Running Rail

1.Turf Track Rail – Hong Kong uses a locally produced running rail and leg system designed for a sand based system, it has now been used for over 25 years.

2.Large All Weather Track Rail – Changed to American Dirt Track specification rail which installed by a “Steriline Racing” in 2008.

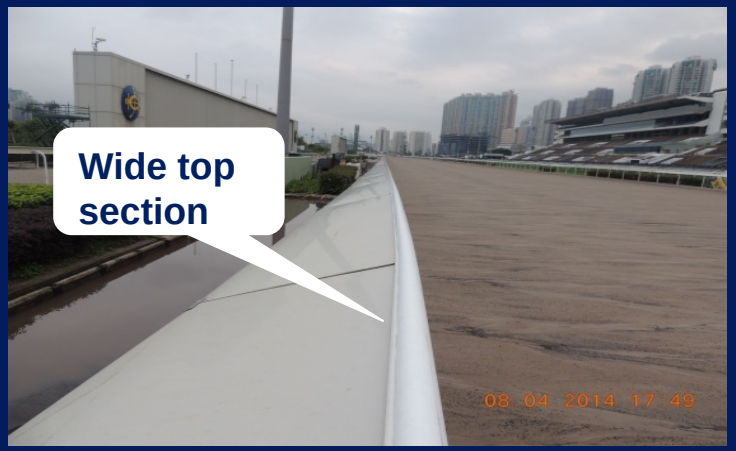
Evaluating and Selecting a Running Rail

1. Adjacent Environment of HK situation

Safety & Stakeholders comments

Jockeys

- Keep Jockeys away from the vertical uprights
- Requested a rail that kept them further away from the inner collection drain
- Had a wide top section for safety if they “landed” on the rail



Large Dirt track

Club followed the “American Standards”

→rail protection system and soft padding

Evaluating and Selecting a Running Rail

1. Adjacent Environment

Safety & Stakeholders comments

Locational limitation of Hong Kong

- Risk from the concrete u-channel and service road if horses “broke” through the rail

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2. Operational requirement

1. Acceptable by stakeholders
2. The rail should have adequate strength for horse impact
3. Not break into smaller pieces
4. Must have a minimum height of 1300mm
5. Joints must not break open easily
6. No impact from heat and sun

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3. Life cycle cost

Life cycle cost is the total cost of an item throughout its life, including the following issues:

Initial Cost

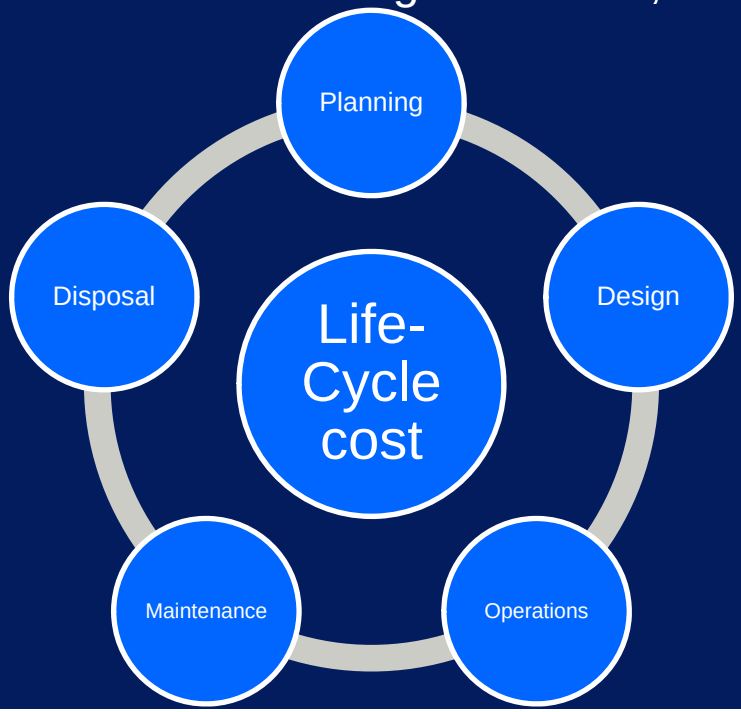
- Planning
- Design

Operational Cost

- Operations
- Maintenance

Disposal Cost

- Disposal



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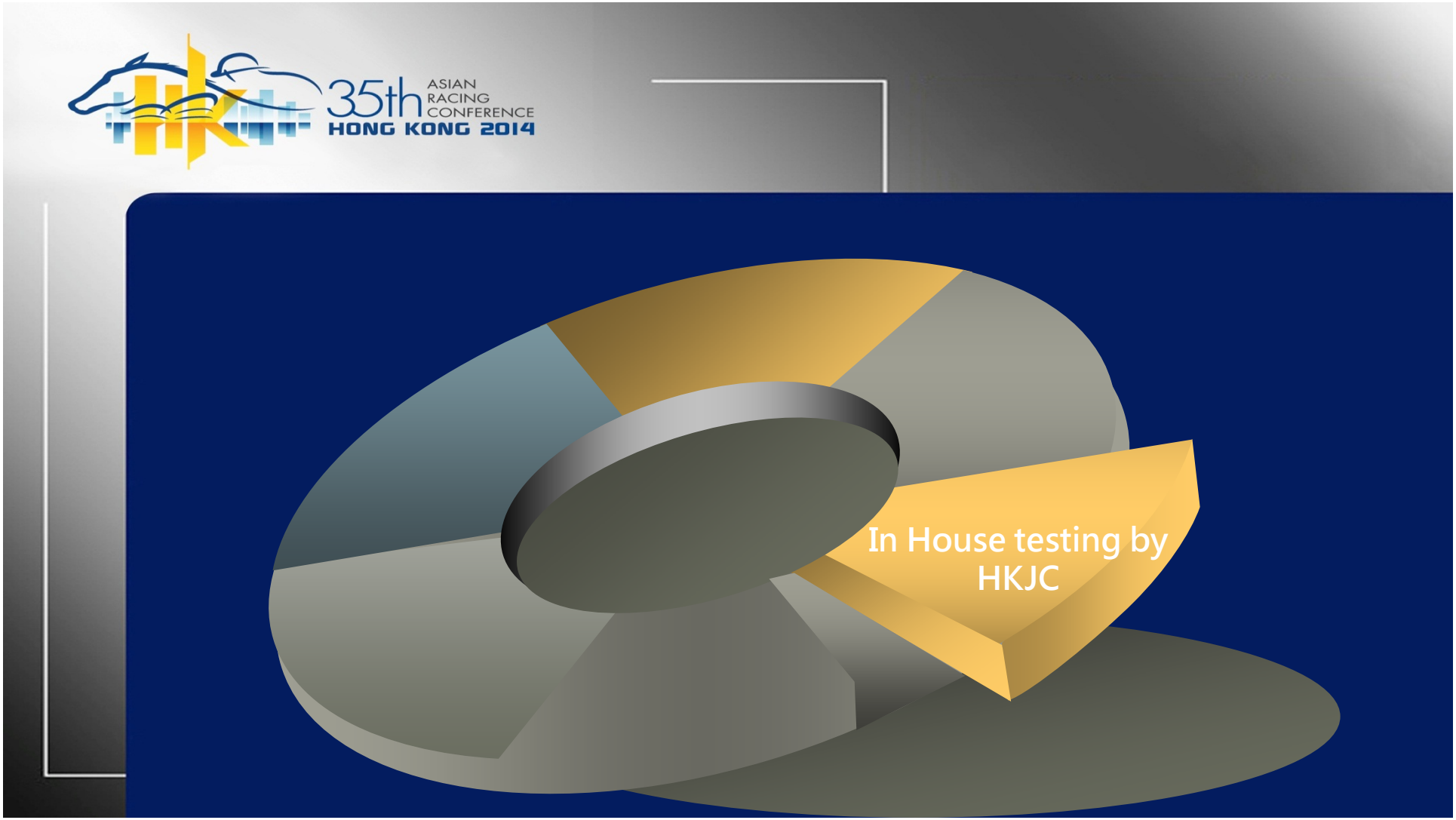
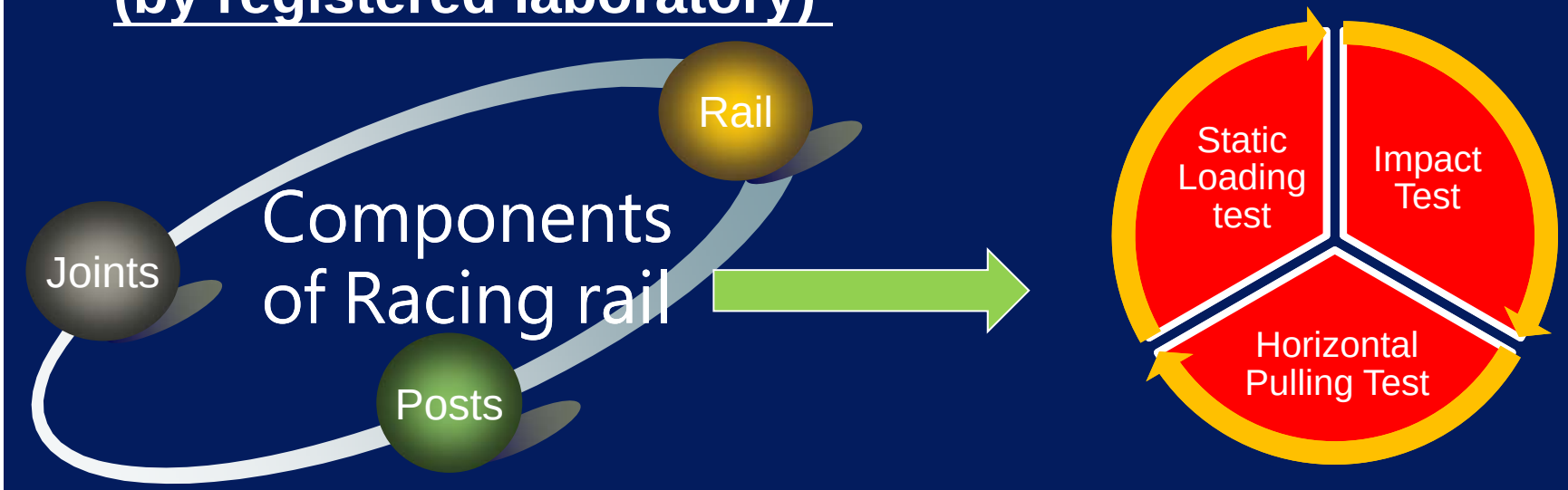


Evaluating and Selecting a Running Rail

Testing process for the rail systems (by registered laboratory)



In house testing

Testing on different brands of rail systems to establish which rails meet our criteria and choose our preferred rail system

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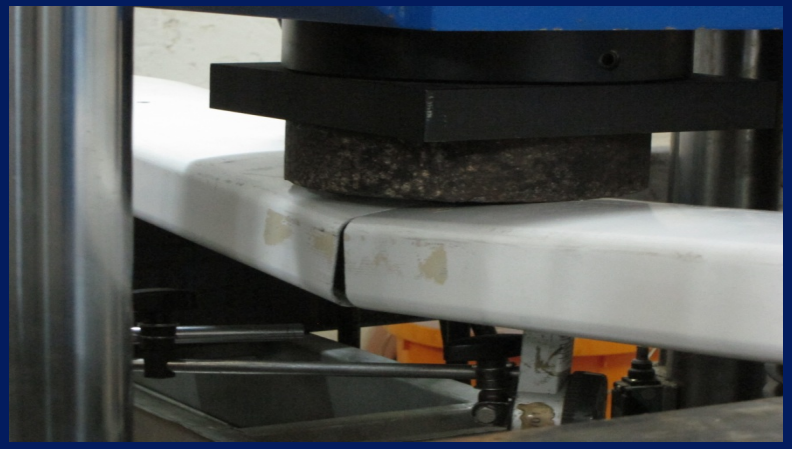
Tests under taken

- Static Loading test

(Testing for the connectivity of the joint)



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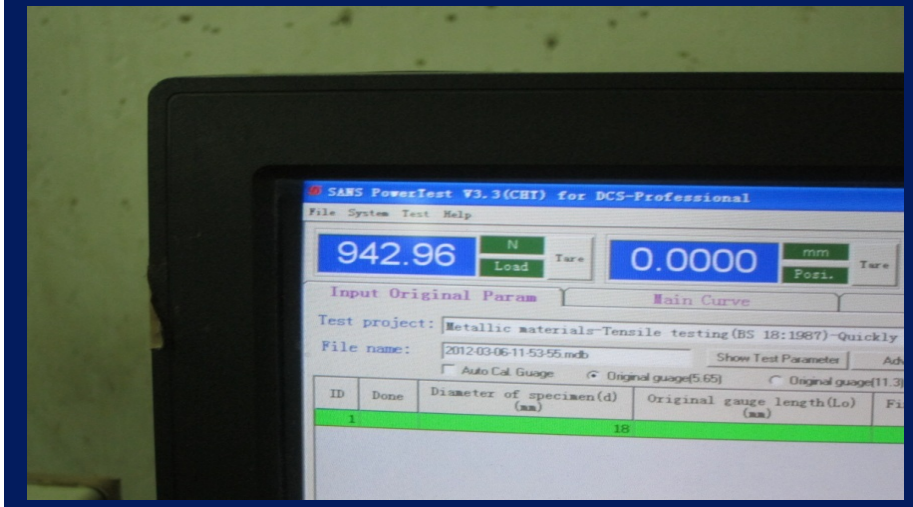

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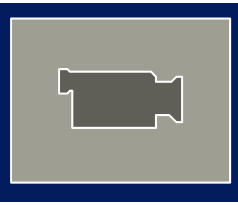
- Static Loading Test

Testing data

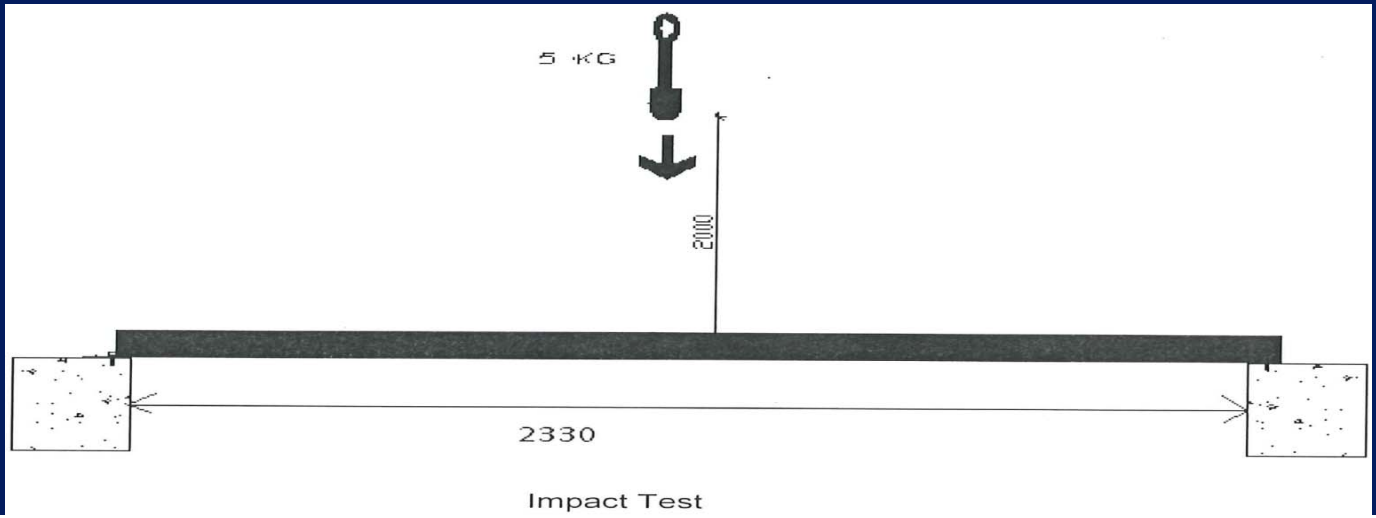
Rail	Maximum force applied to the joint (pounds)	Displacement moved (mm)
Existing Rail	486	42
Type A Rail	**1205**	**24**
Type B Rail	686	21
Type C Rail	438	32



Tests under taken

- Impact Test (Testing for material strength)

→Free drop of 5Kg a mass , using 25mm striker from a height of 2 meters and then measure the damaged caused



Impact Test

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Span is 2350mm (on steel H beam)

Set the striker at 2M height

25mm striker with mass of 5kg

Take initial reading between rail and ground level

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Drop from 2M height

Record any fracturing or cracking (CHN)

Take reading between rail and ground level again

Record any fracturing or cracking (AUD)

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- Impact Test

  Testing data

Rail	Observations
Existing Rail	Slightly concave
Type A Rail	Slightly concave
Type B Rail	Resulted in a hole (Failed)
Type C Rail	Slightly concave

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Tests under taken

- Horizontal Pulling Test

(Testing on the whole system)

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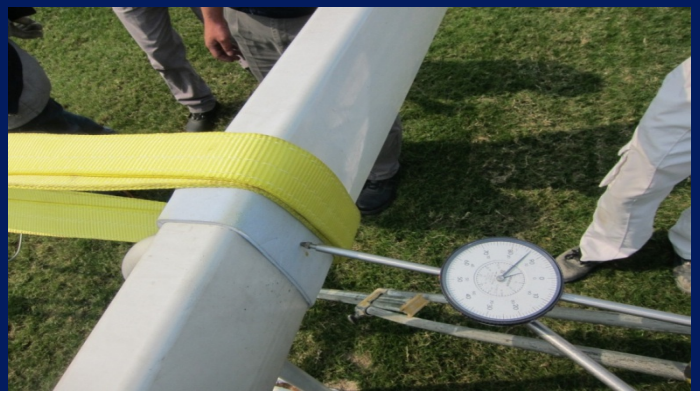
- Horizontal Pulling Test



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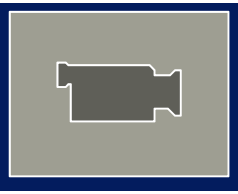
- Horizontal Pulling Test

Testing data

Rail	Maximum force applied to the joint (pounds)	The displacement of original position (mm)
Existing Rail	**207**	**439**
Type A Rail	83 (Failed)	1437
Type B Rail	135	1535
Type C Rail	67 (Failed)	1600



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Based on testing result and pre set weighting

Summary score sheet based on HKJC objectives only (due to environment)

Items	Existing Rail	Type A Rail	Type B Rail	Type C Rail
Static Loading Test	6	9	7	6
Impact Test	8	8	3	8
Horizontal Pulling Test	9	4	6	3
Total score	**23**	**21**	**16**	**17**

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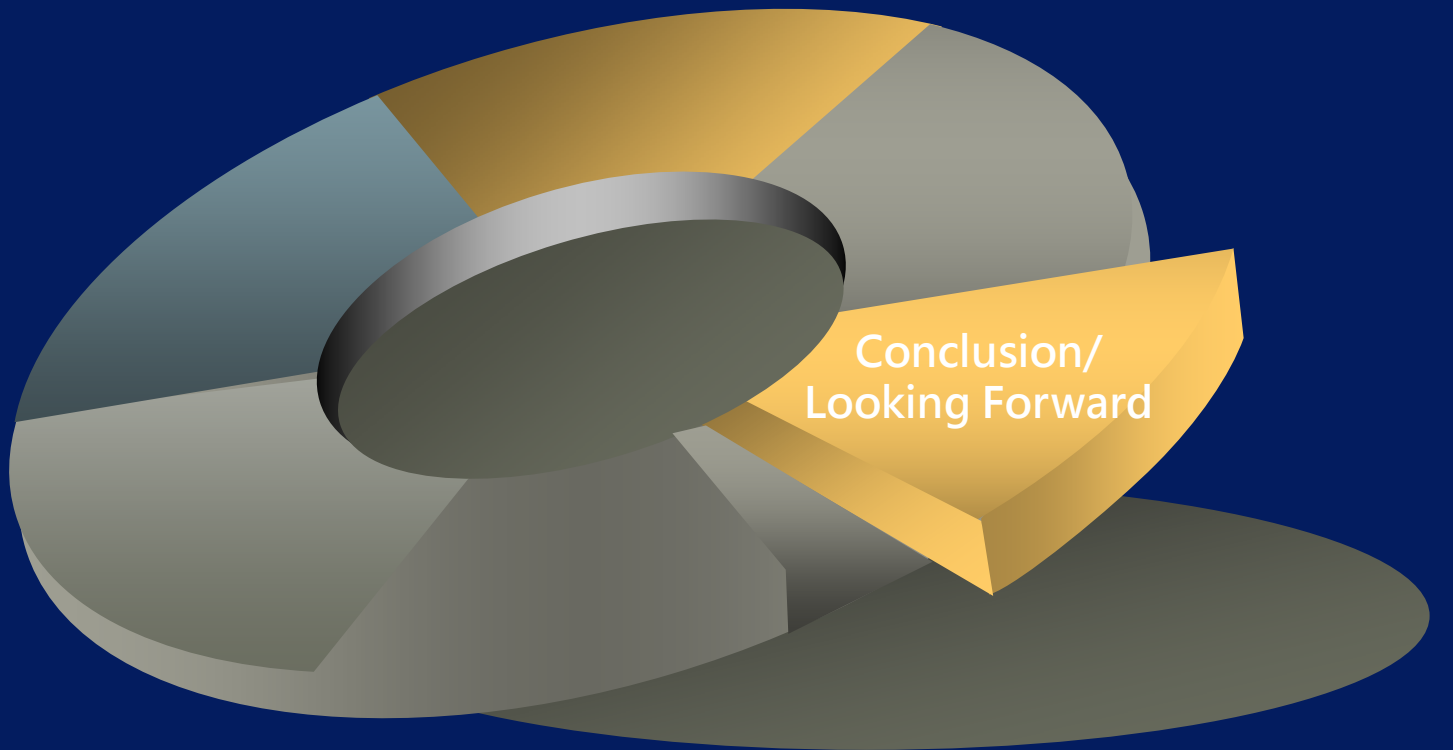

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Items	Existing Rail	Type A Rail	Type B Rail	Type C Rail
Static Loading Test	✓	✓	✓	✓
Impact Test	✓	✓	✗	✓
Horizontal Pulling Test	✓	✗	✓	✗

Conclusion

- Based on Hong Kong's environment, in-house test results, operational requirements together with life cycle costing, changing our current rail could not be justified at this time.

- We were pleased though to see the increased height in the latest rails and the introduction of "Swing-a-way legs" which we think is a great initiative.

Evaluating and Selecting a Running Rail

- Looking forward

❖ Develop a rail system with a manufacturer that includes the issues of safety, operations and cost.

❖ Sources new materials for running rail to meet horizontal strength.

❖ Test new materials that are lite and durable but meet our horizontal strength requirements including uprights.

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Thank you.