

Background to my point of view;

I have been involved in testing since 1979 – (28 years) and sports surfaces testing since 1989. In the last 10 years I have been operating a testing laboratory specialising in the assessment of sports surfaces although now my main interest would be Consultancy work such as authoring specifications, tendering, project and management for sports specific construction projects etc. So I have reasonable grounding in using testing as a tool in my work as a Consultant.

Awareness

Its fair to say that in my experience there is a greater awareness now about testing out in the industry than ever before, this has been lead primarily by Governing Body requirements which have placed a great deal of emphasis on end of job testing i.e. the performance of a pitch or track when it is handed over to the Client. So we have a look at this.

Consultants

Pitches and tracks are specified by a wide variety of Professionals often those who have little knowledge about what they are ultimately trying construct and more importantly little knowledge of the performance side of the surfaces being installed. Many Consultants might only be involved in and have some knowledge of testing in relation to sports pitches and tracks by virtue of conducting a site investigation on the site of the project prior to the start and possibly commissioning testing the completed facility at the end.

The emphasis and focus here whilst much improved over what has happened in the past is perhaps not necessarily helping us to produce the best most durable sports surfaces possible?

So what I am going to cover today in my talk is;

- Good design/construction engineering
- Who is performing testing
- Laboratories and their competence
- Testing for what purpose
- What testing is important – safety?
- What do the results mean to a consultant?
- Confidence in Testing
- Summary

Slide insert; Definitions of testing;

Testing; a consultant's perspective

- *Good design/engineering*

There can be no replacement for good design practice. A well designed pitch or track requires qualified engineering input, detailed knowledge of the site and knowledge of the performance requirements in terms of sports using the surface, to name but some.

- Design from the ground up

Possessing basic site investigation information is becoming important for the Client and designer as there are serious liability issues under the CDM regulations if the design is found wanting at any time at the future. SI info is important for the contractor too as it allow for him or her to take account of the ground conditions pricing the works.

- Designs need to be translated in to the good quality constructed of a pitch or track

However designs need to be translated into good construction practice; an example here were you are asked to adopt a formation or a base to subsequently construct a pitch not knowing the condition of the formation or base prior to adopting this – testing here could identify poor bearing capacity or poor existing surface regularity.

There are a great deal of pitches being constructed using a dynamic base we are definitely seeing more problems with movement in the sub-base structure leading to settlement – construction phase testing used here could identify problems with the compaction of the stone base thus avoiding later failure.

- Testing here should be complimentary and act to affirm that the design being translated into the constructed pitch

- Testing can be used to alter designs during construction.

Insert Slide of PRIMA

Insert of Poor base construction

So my focus here has been on the engineer and the total construction lets focus more on the surfaces side

Testing; a consultant's perspective

- *Who is performing the testing?*

- Commercial Laboratories

There are now many Laboratories set up to provide services on a commercial basis with a high density in Europe. Some manufacturers have laboratories as do Universities – some of these are very well equipped too better than the commercial labs!

- **Individuals**

In the UK and some parts of Europe there are some individuals who provide these services – these individuals do not tend to be accredited to any great extent or carry a full range of equipment. These individuals are used mainly by contractors to perform sign-off testing for pitches and tracks or for failure investigation, litigation.

- **Experience/qualifications of Staff**

There are no real qualifications in this business much a great deal is experienced based however going forward possessing qualifications will I believe help laboratories to discharge their responsibilities as the implications of testing become more onerous and the testing itself becomes more science based. In the UK this means training will be required and a strong grounding in science base qualifications?

- **Equipment**

The resource in terms of equipment for a laboratory is extensive, costly, difficult to maintain and calibrate. This does not appear to be a barrier to new companies entering the market as it is now possible to purchase some of the equipment to order.

Testing; a consultant's perspective

- *Laboratories and their competence*

- Accreditation to ISO 17025
- Approval by Sports Governing Bodies
- Membership of the ISSS
- Testing proficiency – round robin trials

“The accuracy of a test result is fundamental. Providing laboratories with poor test methods and equipment which cannot be calibrated which in turn leads to a lack of reproducible results is a recipe for disaster as it leads to a lack of confidence in the industry. Poor testing data can lead to erroneous decisions with serious commercial implications”.

Sometimes the labs get the test wrong!

Testing; a consultant's perspective

- *Testing for what purpose?*

- To be able to design properly

Discussed earlier

- Certification

Product certification has become very popular as a result of licensing schemes set up by Global and Country governing bodies. We request this information at tender to prove that the system on offer has been tested and approved.

- Quality control

Bearing capacity, compaction, drainage, flatness, thickness, tensile strength, seam strength. This type of testing is extensively specified in the employer's requirements

- Compliance

Confirmation of compliance does this pitch/track meet the specification

- Environmental testing

Pollutants', respirable dusts, leeching even to be able to dispose of

- Failure/accident investigation

Culture of litigation pervades our society now

Testing; a consultant's perspective

- *What is the most valuable form of testing - what is important?*

That which considers safety of an athlete using the facility this has got to be the most important consideration?

However I firmly believe the best value we can get from testing is not necessarily that which proves that the sports pitch or track meets a performance specification. I would rather spend a Client's money making technical inspections throughout construction phase with testing being carried out as pitch/track is built through from drainage to base works to finished surface. Surely this should almost guarantee that the pitch will meet the end of job test.

"The best return from testing is that which provides these assurances"

- As I said earlier however it still important to make sure one covers ones backside!

Testing; a consultant's perspective

- *What do the results mean to the Consultant*

Put simply;

- Many times it is a box ticking exercise

Architects and consultants have to tick those boxes to confirm that the facility passes the tests

- Draw down funding

Many projects are funded by NGB there is a requirement as part of the contract to provide a test report proving that the facility meets the specification, no report draw down in funding!

- Confirmation that the facility meets the intended specification

Purely a compliance issue.

"Most consultants would not analyse test data unless there is a failure to meet a particular specification requirement"

Testing; a consultant's perspective

- *Confidence in Testing*

- Fundamental properties

Some of the best testing we have would be those based on Newtonian units using accelerometers or load cells – this is not to say they are yet the best test methods. What I mean here is that laboratories are still working with Governing bodies to improve the test method to improve the confidence in the results

- Empirical data

Some of the poor tests we have are those based on experience

Whatever tests are used they must be reproducible and unfortunately not all tests called up in performance specifications are as yet! As we develop more complex testing protocols this is very important we should not have to rely on test methods which cannot demonstrate repeatable/reproducible results. All equipment used should be able to be calibrated and this calibration should be traceability to national standards. Currently this is not the case.

Put in context; we know that some of the testing we do does not relate well to sporting performance. From a Consultants perspective this is not that important – why for the reasons given earlier, it could be a box ticking exercise!

This is however important to Sports Governing bodies and Manufacturers the Governing Bodies need to provide us with robust well researched specifications and test methods which provide the data they require and the Manufacturers

need to provide products which can provide a sustainable level of performance which meets the Governing Bodies requirements.

There is little time in a commercial environment to research test methods and there is no funding or time available for others such as Universities to get involved. We are currently suffering for using tests which have not been properly researched and meet the requirements of robust statistical analysis.

Some test laboratory tests that we currently perform have no validity when analysed properly.

Couple of points;

Governing body test reports do not allow comments regarding the quality of the installation

Today if we are looking for a FIFA compliant product we have a wide variety of choice, however if you ask the manufacturer to guarantee performance for the warranty period i.e. 5 years no one will do this? Why; they say -

No control over maintenance;

Lack of experience in how products perform long term;

Limited warranties from their suppliers i.e. yarn manufacturers;

And many other reasons!

Testing; a consultant's perspective

- *Summary*
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