LU Best Practice – Observations and Evolution

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‘MAINTAINING PERFORMANCE OF SYNTHETIC SURFACES’
Wednesday 4th March 2009

SportSURF Seminar
Presentation Outline

• Overview of LU Facilities - Pitch details, Usage,

• Maintenance Schedules - observations and evolution of approach at LU

• Inspections and tools

• Field Monitoring

• Conclusions
LU Facilities - Current

• Water based Hockey – hockey only
• Long-Pile Rubber infill, PEC (3G) – football and rugby training
• Medium Pile Rubber infill, EHB (3G) – football and hockey play
• Long Pile Rubber infill, LUC (3G) – football & rugby training
Hockey – water based

- Constructed 2001/2002
- 11 mm nylon carpet integral foam pad, 12mm insitu shockpad, macadam base
- ‘Fresh’ water irrigation by rain guns
- Usage – 66.5 hours per week (average in term time)
Water based
Water based Pitch – Seam, drying

Issues: algae, uneven drying..
Long Pile (PEC) 3G

- Previously a sand-based football-hockey facility, shockpad rolls, seam splits, 10yrs
- Refurbished in 2002. Macadam base, NO shockpad, 61mm Fibrillated Pile carpet, sand-rubber infill
- Football play and rugby training
- Usage – 64hrs per week (average in term-time)
PEC Rubber Crumb - 61mm Pile
PEC – Fibrillated, Wear
Fibrillated, wear
Medium Pile (EHB) 3G

- Previously a sand-based football-hockey facility, 14yr old, poor drainage, compacted
- Refurbished in 2007, Macadam base, repaired shockpad (25mm), 35mm monofilament pile carpet, sand-rubber infill
- Football and hockey (FIH approved surface)
- Usage – 55hrs per week (average in term-time)
EHB – Rubber Crumb - 35mm Pile
Long Pile (LUC) 3G

• New Build, Nov 2003
• Stone-base (dynamic), 64mm Fibrillated Pile carpet, sand-rubber infill (no shockpad)
• Football primarily, & rugby training
• Usage – approx 27-50 hrs per week (range in term-time)
LU College Pitch – 64mm Pile
Maintenance Schedules - Generic

- **WEEKLY** - litter pick 2-3, 2 safety checks (nets & posts), brush 1 or 2 – different bushes for surfaces
- **MONTHLY** - rotary vacuum brush of the surface (external contractor) – very near surface affected.
- **ANNUAL** - Revitalisation – takes top few mm of infill out, separates out ‘contamination’ and replaces the infill.
- Possible 5 year rejuvenation ….deeper fill removal than revitalisation.
Maintenance – Pitch Specific

Water-Based (standard brushing plus)
• Markings re-applied, 3 monthly
• algal treatment, 3 monthly (light) and annual (full), deep clean required to remove dead algae
• Twice yearly, rain gun and pump/tank
• To be resurfaced in 2010 (8yrs), carpet seam wear and algal problem
Maintenance – Pitch Specific

- PEC – rubber was topped up high, weekly brush with flexi-comb to move infill and ‘fluff’ up regularly to increase shock absorbency. However, deep brushing may affect carpet life, increase fibre wear.

- LUC pitch, similar design to PEC, looks to be wearing less but early issues with undulations (measurable)
Comparison – long pile systems

PEC

LUC
Maintenance – Pitch Specific

• EHB – 35mm, 20mm infill
• light zig-zag brush of surface, to maintain flat surface, prevent infill interlocking.
• Infill maintained to provide good hockey ball roll (too much disturbance reduces this)
Plant (www.sisis.com)
Restrictions

- No cycling
- No glass vessels
- Do not solve to be left

AstroTurf
Since 1965

McArdle

Please observe the
DO NOT USE SPIKED FOOTWEAR
DO NOT CONSUME FOOD
DO NOT DEPOSIT USED CLOTHING
DO NOT SMOKE
DO NOT ALLOW PETS OR CYCLES ON SITE
ALWAYS ENSURE THAT YOU PRIOR TO ENTERING THE AREA AT ALL TIMES
ALWAYS ENSURE EQUIPMENT IS MONITORED UNDER SUPERVISION

19/02/20

Loughborough EHB Synthetic Sports Pitch

This facility is maintained by the Estates Department

In an emergency please call Security on EXT 888
Or on the Security Emergency Freephone Tel No
0800 526966

For operational enquiries please contact the Duty Recreational Assistant on 01509 228673 or 07818 625839

Conditions of use

- No smoking
- No food or chewing gum
- No alcohol
- No glass bottles, all drink must be in plastic bottles
- Deposit litter in bins provided
- Please clean shoes before entering
- Training type footwear only
- Do not wear spikes/ blades/ nylon studded shoes
- No dogs
- No bicycles
- No spectators allowed on the playing surface
- Do not place heavy or sharp objects onto surface

For all bookings please contact 01509 22 6520
Installation Effects - LU

• PEC 2002 – cold shadowed area, infill not so well ‘bedded in’ at time of construction. LU testing confirmed poor shock absorbency (i.e. hard).

• Shockpad quality poor (13 yr old insitu), for the refurbishment of EHB pitch in 2007. Many repairs required, variable thickness the result. Damaged by construction traffic.

• Concerns over ‘undulations’ in LUC pitch - from ‘dynamic’ base? Highlighted by observations during maintenance - variable
Frost retained on PEC long-pile 3G
Pitch Inspections

Ground staff/Operator…

• Can observe…. play, drainage, behaviour under brushing, fibre loss…etc

• Can measure….pile height, infill depth, ball bounce – simple?

• Can ask….for feedback from users, consultant, test house…etc
Pitch Monitoring Tools
(Play Related)

- Hardness – Berlin Athlete/Clegg Hammer
- Friction/Traction – rotation, ball roll
- Resilience – Ball Bounce
Artificial Athlete
Clegg 2.25 KG Impact Hammer
Traction Tester
FIELD MONITORING
EHB (35mm Pile) Pitch - Variation

Fill thickness/Shockpad thickness? Maintenance effects?
Rubber Crumb Shapes

Fill shape, size and compressibility – one primary factor? Decompaaction and drainage
Field Monitoring

Measurement, FRF %, Clegg (g), Traction Nm

- FRF-AVE
- Clegg
- Traction
- LUC-FRF
- LUColl - Tr
- LUColl - Clegg

After Maint. Raking

EHB medium pile

Frost (FRF -7)

Frost

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Some Conclusions

• Playability can be altered by choice of brush, depth of agitation of infill, severity of brushing.
• Frequency? little and often is most sensible?
• Restrict build up of detritus – hoover/clean/spray
• Use simple tools to aid monitoring – long term hardening expected? Avoid ‘fold and fill entrapment’
• Controlled studies would help address many questions re maintenance frequency, type, cost benefits, whole-life analysis approach
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Thank you for your attention!

QUESTIONS?