



SF Environment

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GAVIN NEWSOM
Mayor

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Director

January 9, 2007

Yomi Agunbiade
Director
San Francisco Department of Recreation and Parks
McClaren Lodge, 501 Stanyan St.
San Francisco, California 94117

RE: Use of synthetic turf on City athletic fields

Dear Yomi:

I am writing to you in regard to the increasing concerns over potential human health and environmental impacts of using synthetic turf on City athletic fields. As you know, the City of San Francisco—and the Department of Recreation & Parks, in particular—have a history of adopting a precautionary approach. In this regard, I would like to applaud your department's instrumental role in reducing pesticide use by 70% over the past 10 years, and in implementing measures to safeguard our children from exposure to arsenic treated wood. I would also like to thank you for RPD's continued support of recycling and waste reduction at City parks and recreation centers.

Natural grass represents a particular management challenge when it comes to reducing pesticide and water use. At various events organized by the citywide Integrated Pest Management Program, questions were posed on the appropriateness of synthetic turf as an alternative to natural grass turf for high-intensity uses, such as athletic fields. As a consequence, the Department of the Environment conducted some background research on existing scientific literature, as well as conducting its own study on the potential environmental impacts of synthetic turf installations. I am summarizing the research for you here in hopes that it may inform your decision-making regarding the selection and installation of synthetic turf.

Environmental issues:

SFE commissioned its own review of published studies on environmental issues related to synthetic turf¹, with particular attention to a study published by the California Office of Environmental Health Hazards Assessment (OEHHA)². SFE also conducted its own tests of representative products, specifically looking for the presence of brominated flame retardants and heavy metals³. I have already sent these reports under separate cover. I am summarizing below some of our key conclusions from this research:

¹ San Francisco Department of the Environment. December, 2007. Synthetic turf versus natural turf for playing fields. Report prepared by Dr. Phillip Dickey, Senior Scientist, Washington Toxics Coalition. Available on request

² Office of Environmental Health Hazard Assessment. 2007. Evaluation of health effects of recycled waste tires in playground and track products. Contractors report to the California Integrated Waste Management Board.
<http://www.ciwmb.ca.gov/Publications/Tires/62206013.pdf>

³ San Francisco Department of the Environment. December, 2007. Occurrence of Bromine, Lead, and Zinc in Synthetic Turf Components. Report prepared by Dr. Phillip Dickey, Senior Scientist, Washington Toxics Coalition. Available on request

1. **SFE recognizes potential environmental advantages and disadvantages from synthetic turf use.** Potential advantages include reduced use of pesticides, lower water use, and reduced use of gasoline-powered maintenance equipment. Potential disadvantages include higher climate change impact, lack of recyclability at the end of product life, and heat island effects. The latter issue may not be relevant in prevailing San Francisco weather.
2. **SFE recognizes that human health risks are minimal** from exposure to the crumb rubber infill used with synthetic turf products, according to the OEHHA study⁴. This study found that a minor risk to children may exist after 12 years of hand-to-mouth exposure of synthetic turf infill materials. This risk estimate (2.9 cases per million people) is slightly higher than the *de minimis* risk level of 1 case per one million established by OEHHA⁵. Further review of these data by the Environmental Health Section of the City Department of Public Health is recommended. SFE's own tests found no evidence of brominated flame retardants—persistent bio-accumulative chemicals of particular concern—in the synthetic turf yarns or infill. Still, we also recognize that reference doses have not been established for all of the chemical constituents in these products, and a precautionary approach is appropriate. Until more complete data is available, **the use of synthetic turf should be confined to the sites where its benefits are maximized**, such as heavily used athletic fields.
3. **SFE is concerned that there is currently no system available to recycle** used synthetic turf, even though most of the products are composed of polyethylene, an easily recyclable plastic. In keeping with the Extended Producer Responsibility Resolution (February 23, 2006), SFE wishes to require manufacturers to take responsibility for the products at end of life, thereby encouraging better product design. When companies are responsible for ensuring their products are recycled responsibly, and when health and environmental costs are included in the product price, there's a strong incentive for producers to design—and consumers to purchase—goods that are more durable, easier to recycle, and less toxic. For these reasons, we recommend **requiring that synthetic turf vendors guarantee take back** of the product at end of life, and **provide documentation** that the product is recycled within a specified time after removal.
4. **SFE recommends that RPD specify the use of recycled content materials in the manufacturing of artificial turf** pursuant to Section 6.4(b) of the Administrative Code (Public Works Construction – Use of Recycled Content Materials). This post-consumer recycled content requirement should apply not only to the infill material—which is largely composed of recycled crumb rubber—but also to the artificial grass fibers, which are usually manufactured from polyethylene.
5. SFE recognizes the **potential for aquatic toxicity** from synthetic turf leachate³, but also notes that leachate concentrations will not approach levels of concern in normal installations above water table. Synthetic turf installations should be restricted to areas that are not prone to flooding, and include properly installed subsurface drainage systems.
6. There are several other potential health-related issues related to synthetic turf that are outside the scope of our reviews, including differences in sports injuries on synthetic turf vs. natural turf, and the potential for spreading methicillin-resistant *Staphylococcus aureus* (MRSA) among players. The

⁴ Office of Environmental Health Hazard Assessment. 2007. Evaluation of health effects of recycled waste tires in playground and track products. Contractors report to the California Integrated Waste Management Board. <http://www.ciwmb.ca.gov/Publications/Tires/62206013.pdf>

⁵ OEHHA. 2006. A Guide to Health Risk Assessment, available at www.oehha.ca.gov/pdf/HRSguide2001.pdf

connection between synthetic turf use and MRSA infections appears controversial⁶; while researchers agree that turf burns could make infections easier, they generally cite player-to-player contact as the primary method of transmission potentially occurring off the field where more player-to-player contact expected such locker rooms, whirlpools and through the sharing of towels, water bottles, and shower rooms. Nevertheless, at least one company is now promoting a disinfectant product specifically intended for MRSA on synthetic turf fields. It is our understanding that RPD does not currently use a disinfectant or other chemicals in the maintenance of its synthetic turf fields. Use of such disinfectants on San Francisco fields in the future could represent a significant potential environmental impact, therefore we recommend that any decision to use disinfectants or chemicals on synthetic fields should be reviewed carefully by the Department of Public Health.

Recommendations:

- Create transparent selection criteria for determining which playing fields will have synthetic turf installed. These criteria should include the selection of sites that are not prone to flooding.
- Confine installations of synthetic turf to the sites where its other benefits are maximized.
- Due to the need for information regarding potentially toxic constituents, require full ingredients disclosure from manufacturers.
- If hand-to-mouth exposure by children can be reasonably expected, post signs reminding parents to wash children's hands after play.
- Due to concerns over end-of-life disposal, require that synthetic turf vendors guarantee take back of the product at end of life, and provide documentation that the product is recycled.
- Pursuant to the ordinance regarding the use of recycled content materials in Public Works construction, SFE recommends that post-consumer recycled content materials be specified in the manufacturing of all components comprising artificial turf.
- Do not permit the use of disinfectants on synthetic turf areas without full review by the Department of Public Health.
- Obtain comments from the San Francisco Public Utilities Commission on both the potential water conservation benefits and the leaching concerns associated with synthetic turf products.
- Obtain comments from the DPH Environmental Health Section on the human health risks discussed above.

Please feel free to contact me or Dr. Chris Geiger of my staff (415-355-3759) if you have any questions.

Best regards,



Director

⁶ Begier et al. 2004. A High-Morbidity Outbreak of Methicillin-Resistant *Staphylococcus aureus* among Players on a College Football Team, Facilitated by Cosmetic Body Shaving and Turf Burns. *Clinical Infectious Diseases* 2004; 39:1446–53 (15 November)