AMITY REGIONAL SCHOOL DISTRICT NO. 5 BOARD OF EDUCATION
APRIL 19, 2021 REGULAR MEETING MINUTES
6:30 P.M., 100 Ohman Avenue, Orange, CT

BOARD MEMBERS PRESENT
John Belfonti, Christopher Browe, Patricia Cardozo, Andrea Hubbard, Dr. Jennifer Turner, Paul Davis (remote), Carla Eichler (remote), George Howard (remote), Sheila McCreven (remote), Patrick Reed (remote), Robyn Berke (remote, arrived 6:34 p.m.)

BOARD MEMBERS ABSENT
Shannan Carlson, Steven DeMaio

STUDENT REPRESENTATIVES PRESENT
Alison Bowler (remote)

STAFF MEMBERS PRESENT
Dr. Jennifer Byars, Theresa Lumas, Stephan Ciceron, Stephen Martoni, Anna Mahon

1. CALL TO ORDER

Chairperson Belfonti called the meeting to order at 6:32 p.m.

2. PLEDGE OF ALLEGIANCE

Recited by those present

3. APPROVAL OF MINUTES

a. Board of Education Regular Meeting - March 8, 2021

MOTION by Patricia Cardozo, Second by Christopher Browe, to approve minutes as submitted
VOTES IN FAVOR, 10 (unanimous)
MOTION CARRIED

b. Board of Education District Meeting - Public Hearing - April 5, 2021

MOTION by Paul Davis, Second by Andrea Hubbard, to approve minutes as submitted
VOTES IN FAVOR, 10 (Belfonti, Browe, Cardozo, Hubbard, Turner, Berke, Davis, Eichler, Howard, McCreven)
ABSTAINED, 1 (Reed)
MOTION CARRIED

c. Board of Education Special Meeting - April 5, 2021

MOTION by Patricia Cardozo, Second by Christopher Browe, to accept minutes with edit
VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

4. STUDENT REPORT

a. Monthly Report

5. PUBLIC COMMENT

Correspondence from out-of-state companies summarized by Carla Eichler

6. SUPERINTENDENT'S REPORT

a. Personnel Report

b. Superintendent Report

c. Revisions to 2021-2022 Approved School Calendar

d. Update on End of Year - COVID Updates, Exams, Prom, Senior Events, Graduation

7. CORRESPONDENCE

Summarized by Carla Eichler

8. CHAIRMAN'S REPORT

a. Committee Reports

1. ACES

2. Ad Hoc School Safety

3. CABE

4. Curriculum

5. District Health and Safety

6. District Technology

a. Monthly Report

7. Facilities

a. Monthly Report

8. Finance

a. Discussion and Possible Action on Contracts over $35,000

1) Financial software

2) Facilities

- **Snow Removal, Ice Control, and Sanding Services**
- **District Chiller Maintenance**
- **Building Controls**
- **Site-Based Grounds Maintenance**
- **Safety Services**
- **Trash and Recycling Services**
- **Cooling Tower Piping**

3) Athletic Trainer Services

MOTION by Patricia Cardozo, Second by Christopher Browe, to vote all agenda items listed under DISCUSSION AND POSSIBLE ACTION ON CONTRACTS OVER $35,000 at the same time (Financial Software; Snow Removal, Ice Control, and Sanding Services; District Chiller Maintenance; Building Controls; Site-Based Ground Maintenance; Safety Services; Trash and Recycling Services; Cooling Tower Piping; and Athletic Training Services)
VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

MOTION by Patricia Cardozo, Second by Christopher Browe, to approve at the same time:

- *Extend the contract with Tyler Technologies for the MUNIS Financial Accounting Systems for a cost of $76,733.97. The Amity Board of Education waives the bid requirement.*
- *Award the snow removal, ice control and sanding services to Denny Landscaping Ltd of Orange, Connecticut, for July 1, 2021 to June 30, 2022, the third year of a three-year contract. The Board reserves the right to cancel the contract if Denny Landscaping Ltd of Orange, CT fails to perform in a satisfactory manner.*
- *Award the district chiller maintenance contract to Trane Building Services (local Trane office in Rocky Hill, Connecticut) for the second year of a three-year contract commencing July 2021, through June 2022, for $14,312. The total of the three-year contract is $42,949.00. This is a sole source vendor for the District's Trane equipment, and thereby, the sealed bid requirements are not required. The Board reserves the right to cancel the contract if Trane Building Services fails to perform in a satisfactory manner.*
- *Award the building controls contract to Siemens Industry, Inc. for the annual contract at the price of $29,293.00. The Board reserves the right to cancel the contract if Siemens Industry, Inc. fails to perform in a satisfactory manner.*
- *Award the site-based grounds maintenance program for July 1, 2021 to June 30, 2022 to Sports Turf of Connecticut of Orange, Connecticut, at the price of $218,000.00 for year three of a three-year contract period. The Board reserves the right to cancel the contract if Sports Turf of Connecticut of Orange, Connecticut fails to perform in a satisfactory manner.*
- *Award year two of a three-year contract for the School Safety Services to Fuss & O'Neill of Manchester, CT at a price of $13,410.00 from the State Contracting Portal.*
- *Award a one-year contract extension for the Trash and Recycling Removal Services to All American Waste, LLC at a price of $38,614.98 not including extra charges for additional pickups. This is an extension of a three-year contract totaling $115,844.94. The Board reserves the right to cancel the contract if All American Waste, LLC fails to perform in a satisfactory manner.*
- *Award the replacement of piping on the cooling tower at Amity High School to F & F Mechanical at a price of $32,534.*
- *Waive the bid requirement and award the athletic trainer services to Rehab Associates for $64,600.00 for one year*

VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

b. Discussion and Possible Action on Athletic Project Change Order

MOTION by Christopher Browe, Second by Patrick Reed, to waive the bid requirement and reclaim the asphalt of the secondary entrance and walkways to the stadium and replace during the course of the stadium project. The cost is not to exceed $82,950.00.
VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

MOTION by Christopher Browe, Second by Paul Davis, *to approve a transfer from Bond Contingency Account to the Athletic Project Account. Reclaim the asphalt of the secondary entrance and walkways to the stadium and replace during the course of the stadium project at Amity High School.*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
17-00-15-0047-5720	*Bond Contingency*	*$82,950*	
17-00-15-0047-5720	*Athletic Projects*		*$82,950*

VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

MOTION by Patricia Cardozo, Second by Dr. Turner, to approve a transfer from Bond Cost of Issuance Account and Contingency Account to the HVAC Project Account.

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
17-00-15-0053-5715	*Bond Contingency*	*$ 2,764*	
17-00-15-0051-5330	*Cost of Issuance*	*$39,156*	
17-00-15-0048-5715	*HVAC - AHS*		*$41,920*

VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

c. Discussion of Monthly Financial Statements

Chairperson Belfonti publicly thanked Ms. Lumas for her expertise and effort in financial planning during the past difficult and unpredictable pandemic year.

d. Director of Finance and Administration Approved Transfers Under $3,000

e. Discussion and Possible Action on Budget Transfers of $3,000 or More

MOTION by Patricia Cardozo, Second by Dr. Turner, to vote on all items listed in the March 31.2021 BUDGET TRANSFERS OVER $3,000 FOR FY 2020-21 memo at the same time (Staff Development; Music – Amity High School; Science Textbooks – Amity High School; Technology – Amity High School; Special Education – Professional Technical Services; Piping on Cooling Tower; and COVID)
VOTES IN FAVOR, 11 (unanimous)

MOTION by Patricia Cardozo, Second by Andrea Hubbard, to approve the following:

- *Budget transfer to cover the presenters for professional development.*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
05-13-2212-5581	*Travel- Conferences*	*$ 4,800*	
05-13-2212-5330	*Professional Technical Services*		*$ 4,800*

- *Budget transfer to cover the cost of two baritone saxophones.*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
03-11-1010-5611	*Instructional Supplies*	*$4,986*	
03-11-1010-5730	*Equipment – New*		*$2,493*
03-11-1010-5731	*Equipment – Replacement*		*$2,493*

- *Budget transfer to cover the new Anatomy & Physiology textbooks and licenses at Amity High School.*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
03-11-1013-5611	*Instructional Supplies*	*$14,583*	
03-11-1013-5420	*Repair & Maintenance*	*$ 631*	
03-11-1013-5581	*Staff Travel*	*$ 785*	
03-11-1013-5810	*Dues & Fees*	*$ 1,000*	
05-15-0000-5850	*Contingency*	*$ 3,996*	
03-11-1013-5641	*Textbooks*		*$20,695*

- *Budget transfer to cover the cost of a replacement smartboard:*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
03-11-1013-5611	*Instructional Supplies*	*$4,502*	
05-14-2350-5731	*Equipment – Replacement*		*$4,502*

- *Budget transfer to cover the cost of professional services:*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
04-12-6116-5510	*Transportation-Public*	*$20,000*	
04-13-2190-5330	*Professional Services*		*$20,000*

- *Budget transfer to cover the cost of piping on the cooling tower at Amity High School:*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
03-14-2600-5715	*Improvements to Buildings*	*$23,555*	
05-14-2600-5715	*Improvements to Buildings/Contingency*		*$23,555*

- *Budget transfer to cover cost of operations including rentals, personal protective equipment, distance learning tools and equipment, and cleaning supplies, $58,994:*

ACCOUNT NUMBER	***ACCOUNT NAME***	***FROM***	***TO***
05142675-5440	*Rentals*		*$ 4,151*
05142675-5611	*Instructional Supplies*		*$ 6,079*
05142675-5613	*Maintenance Supplies*		*$11,070*
05142675-5690	*Other Supplies*		*$27,694*
05142675-5730	*Equipment - New*		*$10,000*
01111005-5641	*Textbooks*	*$ 1,485*	
01111010-5420	*Repair & Maintenance*	*$ 540*	
01111011-5420	*Repair & Maintenance*	*$ 150*	
01111013-5510	*Transportation*	*$ 90*	
01111014-5641	*Textbooks*	*$ 210*	
01111016-5641	*Textbooks*	*$ 215*	
01113202-5420	*Repair & Maintenance*	*$ 225*	
01113202-5510	*Transportation*	*$ 2,556*	
01132400-5420	*Repair & Maintenance*	*$ 75*	
01142700-5510	*Transportation*	*$ 533*	
05142700-5514	*Transportation*	*$ 5,435*	
01111005-5641	*Textbooks*	*$ 1,564*	
02111008-5420	*Repair & Maintenance*	*$ 75*	
02111010-5420	*Repair & Maintenance*	*$ 630*	
02111011-5420	*Repair & Maintenance*	*$ 60*	
02113202-5420	*Repair & Maintenance*	*$ 225*	
02113202-5510	*Transportation*	*$ 2,556*	
02132400-5420	*Repair & Maintenance*	*$ 75*	
02142700-5510	*Transportation*	*$ 450*	
03111001-5730	*Equipment - New*	*$ 150*	
03111005-5641	*Textbooks*	*$ 1,110*	
03111006-5641	*Textbooks*	*$ 300*	
03111008-5420	*Repair & Maintenance*	*$ 165*	
03111009-5641	*Textbooks*	*$ 1,237*	
03111010-5420	*Repair & Maintenance*	*$ 776*	
03111013-5420	*Repair & Maintenance*	*$ 150*	
03111013-5641	*Textbooks*	*$ 225*	
03113202-5420	*Repair & Maintenance*	*$ 5,083*	

03113202-5510	*Transportation*	*$26,199*	
03132400-5420	*Repair & Maintenance*	*$ 300*	
03132400-5641	*Textbooks*	*$ 900*	
03142700-5510	*Transportation*	*$ 5,250*	
Totals		***$ 58,994***	***$ 58,994***

VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

f. Informational

1) Project Expenditure Report

2) Discussion and Possible Action on Pension Amendment Information

MOTION by Patricia Cardozo, Second by Christopher Browe, to modify the Amity Regional High School District Number Five Pension Plan with the proposed amendment and authorize the Superintendent of Schools to sign the amendment document.
VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

9. Policy

a. First Read

1) Policy 6172.4 Title 1 Parent and Family Engagement

2) Policy 4111.3 Minority Recruitment

Policy 4111.3 Minority Recruitment was referred back to Policy Committee for further discussion.

3) Policy 4112.8 Nepotism: Employment of Relatives

b. Second Read

1) Policy 3560 Capital Outlay

2) Policy 5125 Student Records; Confidentiality

3) Policy 4111 Recruitment and Selection

Policy 4111 Recruitment and Selection was referred back to Policy Committee for further discussion.

4) Policy 4112.1 Contracts of Employment

5) Policy 4112.2 Certification

6) Policy 4112.5 Security Check/Fingerprinting

MOTION by Patricia Cardozo, Second by Dr. Turner, to vote on all policies listed under SECOND READ agenda item at the same time (Policy 3560 Capital Outlay; Policy 5125 Student Records, Confidentiality; Policy 4111 Recruitment and Selection; Policy 4112.1 Contracts of Employment; Policy 4112.2 Certification; and Policy 4112.5 Security Check/Fingerprinting)
AMENDMENT TO MOTION by Patricia Cardozo, Second by Dr. Turner, to vote on the following policies at the same time: Policy 3560 Capital Outlay; Policy 5125 Student Records, Confidentiality; Policy 4112.1 Contracts of Employment; Policy 4112.2 Certification; and Policy 4112.5 Security Check/Fingerprinting)
VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

MOTION by Patricia Cardozo, Second by Dr. Turner, to approve the following policies at once: Policy 3560 Capital Outlay; Policy 5125 Student Records, Confidentiality; Policy 4112.1 Contracts of Employment; Policy 4112.2 Certification; and Policy 4112.5 Security Check/Fingerprinting)
VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

10. Personnel

a. Discussion and Possible Action on Non-renewal of Teacher Contract

MOTION by Patrick Reed, Second by Christopher Browe, that the contract of employment of Kristen Donovan not be renewed for the following year upon the expiration at the end of the 2020-2021 school year, and that the Superintendent of Schools is directed to advise such person in writing of this action.
VOTES IN FAVOR, 8 (Belfonti, Browe, Cardozo, Hubbard, Turner, Eichler, Howard, Reed)
ABSTAINED, 3 (Berke, Davis, McCreven)
MOTION CARRIED

9. NEW BUSINESS

- Board of Education Retreat
- Storage containers – possibly paint black and gold with Amity emblem as school project or work project if owned by Amity

10. ITEMS FOR THE NEXT AGENDA – Due to Chairperson by April 30, 2021

11. ADJOURNMENT

MOTION by Christopher Browe, Second by Patricia Cardozo, to adjourn meeting
VOTES IN FAVOR, 11 (unanimous)
MOTION CARRIED

Meeting adjourned at 8:40 p.m.

Respectfully submitted,
Pamela Pero
Pamela Pero, Recording Secretary

From: Jeff Gearhart
To: Pamela Pero
Subject: Comment letter regarding artificial turf PFAS content
Date: Monday, April 19, 2021 10:43:53 AM
Attachments: AMITY REGIONAL BOARD OF EDUCATION_PFAS.pdf

Pamela,

Please see attached a comment letter on this item.

Please let me know if you have any questions.

Jeff Gearhart

Jeff Gearhart
734-369-9276
734-945-7738
skype: jeff.gearhart1442

ECOLOGYCENTER
Healthy People, Healthy Planet

April 19, 2021

Dear Amity Regional Board of Education,

I am providing the following statement of information regarding the agenda item "Discussion and Possible Action on Athletic Project Change Order" related to a possible artificial turf installation in the District.

Our organization has been conducting research on PFAS content in commercial and residential indoor carpet, as well as synthetic artificial turf, for the last two years. We have analyzed 100's of residential carpet samples and dozens of synthetic artificial turf samples. This work, carried out with external contract labs and university-based scientists, includes testing carpet and synthetic turf fiber for individual PFAS chemicals, total oxidizable precursors and for total fluorine, an indicator of PFAS. I have provided some general guidance on PFAS testing and PFAS-free certification below.

It is important to note that the PFAS class includes both non-polymeric and polymeric groups of chemicals and polymers. Some of the turf industry has made the false claims that polymeric PFAS is not PFAS. These PFAS fluoropolymers may have significant impacts throughout their life cycle. There are atleast three important issues to note regarding the fate and environmental impact of polymeric PFAS:

1. PFAS fluoropolymers can break down into smaller and smaller particles in the environment, and nanosized particles have been shown to enter cells.
   i) https://pubs.acs.org/doi/10.1021/acs.est.0c03244
   ii) https://www.healthandenvironment.org/webinars/96549
2. PFAS fluoropolymers require small-molecule PFAS to create. These small molecules (PFOA & others) mostly end up in the environment. Extensive surface and groundwater contamination has occurred at these chemical production sites.
3. HFC's are emitted during the manufacture of these PFAS polymers. This was recently disclosed for the Chemours Louisville Works plant:

> "The Chemours Louisville Works along the banks of the Ohio River is the nation's largest emitter of a climate super-pollutant known as hydrofluorocarbon-23 (HFC-23). HCFC-22 also destroys atmospheric ozone that helps protect the earth from harmful ultraviolet rays.
>
> The production and use of the chemical was banned in the United States and other developed countries Jan. 1, 2020, under an international agreement known as the Montreal Protocol.
>
> However, *Chemours is exempt from the ban because the HCFC-22 produced in Louisville is used as a feedstock to manufacture Teflon and other fluoropolymers...*"

https://www.courier-journal.com/story/news/2021/03/10/global-warming-louisville-plant-emits-super-pollutant-contributors/6932934002/

Other comments on testing and PFAS-free certification are discussed below.

The turf industry is able to conduct elemental fluorine testing for all products. Total fluorine testing is now required for certification systems for PFAS-free firefighting foams and PFAS-free food packaging, and should be the standard for polymers like turf as well.

Of the nine synthetic turf fibers we tested last year, fluorine was detected in 100%. Fluorine levels ranged from 44 to 255 parts per million. Additional tests not detailed here on two of the samples found evidence of organic fluorine, supporting the likelihood that PFAS is present. These turf samples included both new and installed product. This sampling is limited and does not represent the entire market. However, we continue to conduct ongoing testing of samples and testing of additional samples had similar findings. And it highlights the need for companies to provide clear test results if they are claiming PFAS-free.

Total fluorine tests do not tell us exactly which PFAS chemicals are present, but based on industry literature, we believe a likely source of the detected fluorine is processing aids used in the production of synthetic turf fibers. PFAS-based processing aids are not included in commonly used test methods and thus can be missed.

For this reason, it is critical for companies to conduct testing of fibers using an appropriate method. Most manufacturer-provided test results we have reviewed used a method designed for water testing. While this method is not designed specifically for solid polymer samples, it has been widely, and appropriately used to look at PFAS in variety of matrices. However, these tests are limited due to the fact they can detect only a portion (typically 24 – 40 compounds, depending on the lab) of the hundreds of possible PFAS chemicals which may be present.

The testing method that has typically been used by companies attempting to demonstrate PFAS-free composition is EPA Method 537.1, "Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry."

Due to the limited number of chemicals it can detect, this US EPA method is likely not sufficient to demonstrate a carpet or turf fiber is PFAS-free. We routinely request contract labs run both EPA Method 537.1 and one of the total fluorine methods to document. We often see that the targeted analysis for inidviudual PFAS chemicals significantly underreport the actual PFAS content of products in which PFAS is used. In addition to the two methods that measure total fluorine, other techniques can measure total organic fluorine, thus ensuring results are not skewed by the possible presence of inorganic fluorine (which is distinct from PFAS). A company claiming PFAS-free turf fiber should thus be able to produce testing results showing less than 1 part per million of total organic fluorine or total fluorine.

The California Proposition 65 and US EPA's Method 537 are not relevant standards for asserting a product is PFAS-free. California Proposition 65 only regulates few PFAS chemicals. US EPA's Method 537 is a test method not even a definitive list of chemicals. The list of chemicals that can be analyzed by US EPA's Method 537 is limited by the availability of laboratory reference standards for the many hundreds of PFAS chemicals that should be analyzed for. Labs routinely use US EPA's Method 537 (with modifications) to analyze 11 to 40 PFAS chemicals, depending on the lab. As I stated earlier,

recent PFAS-free certification standards (*GreenScreen Certified*) for both firefighting foams and food packaging have specified total elemental fluorine testing.

Given the concerns around groundwater contamination, as well as athlete health, your boards should require reliable third-party testing using both one of the total fluorine methods and one of the targeted methods:

To certify a product to be PFAS -free, we would recommend the following tests:

1. Combustion Ion Chromatography OR Oxygen Flask Combustion and Ion-Selective Electrode to identify elemental fluorine content;
2. It is also helpful to run EPA Method 537.1 modified for polymers with the ability to detect 40 PFAS compounds; AND a TOP Assay to identify the presence of some PFAS precursors.

In addition to our academic collaborators, we have found a range of third-party labs capable of conducting this type of analysis. These include, but are not limited to: Eurofins Australia or Test America (Sacramento); Galbraith Labs; ALS Environmental; and SGS.

Please feel free to contact me directly if you have further questions.

Jeff Gearhart
Research Director

Ecology Center
339 E. Liberty, Suite 300
Ann Arbor, Michigan 48104
734-945-7738
jeffg@ecocenter.org

From:	Diana Zuckerman
To:	Pamela Pero
Subject:	Letter from National Center for Health Research to the Amity Board of Education
Date:	Monday, April 19, 2021 9:58:40 AM
Attachments:	NCHR Letter to Amity Board of Ed re turf April 2021.pdf

The letter I sent last week to the Amity Board of Ed is below and attached. Please make it viewable as a public comment. Thank you.

April 16, 2021

Dear Members of the Board of Education:

I am writing to share scientific information about artificial turf and playground surfaces, which I am confident will help you determine the best decisions to make for the children and adults in your community.

As President of the National Center for Health Research, I am writing at the request of many of your constituents to share the information we have provided to Members of Congress, state and federal agencies, state and local legislators, parents, and others who want to ensure that our children are not exposed to dangerous chemicals or metals when they play on artificial turf or playgrounds. Our nonprofit think tank is located in Washington, D.C. Our scientists, physicians, and health experts conduct studies and scrutinize research. Our goal is to explain scientific and medical information that can be used to improve policies, programs, services, and products.

We strongly urge you to consider the risks of replacing grass fields and natural playgrounds with artificial turf. In recent years, we've learned new information about lead and PFAS in artificial turf, as well as the risks of some of the newer infill materials that turf companies are using to replace tire crumb. Tire crumb has well-known risks, containing chemicals that

disrupt hormones and have the potential to increase obesity; contribute to early puberty; cause attention problems such as ADHD; exacerbate asthma; and eventually cause cancer. I would be shocked if you haven't educated yourselves about those risks, which are now widely understood in many communities.

However, it is less well known that the plastic grass itself has dangerous levels of lead, PFAS, and several other hormone-disrupting chemicals as well. PFAS are of particular concern because they enter the body and the environment as "forever chemicals," which means that they are not metabolized and do not deteriorate, accumulating over the years. However, other hormone-disrupting chemicals are also dangerous because they are pervasive, and the impact of different types of hormone-disrupting chemicals is cumulative. Replacing tire waste with silica, zeolite, and other materials also has substantial risks.

Federal agencies such as the EPA and the U.S. Consumer Product Safety Commission have been investigating the safety of these products. Despite claims to the contrary, none have concluded that artificial turf is safe. Although the Trump Administration's EPA stated that there was no conclusive evidence that the levels of chemicals in artificial turf was harmful to children, they made it clear that their research was based on assumptions rather than scientific research on children.

Lead

As you probably know, the American Academy of Pediatrics states that no level of lead exposure should be considered safe for children, because lead can cause cognitive damage even at low levels. Some children are more vulnerable than others, and that can be difficult or even impossible to predict. Since lead has been found in tire crumb as well as in new synthetic rubber, it is not surprising that numerous artificial turf fields and playground surfaces made with either tire crumb or "virgin" rubber have been found to contain lead. However, the Centers for Disease Control and Prevention (CDC) website also warns that the "plastic grass" made with nylon or some other materials also contains lead. Whether from infill, plastic grass, or rubber playground surfaces, the lead doesn't just stay on the surface. With wear, the materials turn to dust containing lead and other chemicals that is invisible to the eye and is inhaled by children when they play.

Why are chemicals that are banned from children's toys allowed in artificial turf and rubber playground surfaces?

Synthetic rubber and plastic are made with different types of endocrine (hormone) disrupting chemicals (also called EDCs).

As I noted earlier in this letter, these hormone-disrupting chemicals can cause or exacerbate numerous health problems that are common in every U.S. community: obesity; early puberty; attention problems such as ADHD; and asthma. For example, any parent can tell you how shocked they have been by girls' obvious earlier sexual development compared to when their parents were their age. Similarly, obesity, attention deficit disorders, asthma, and male infertility are clearly on the rise. In addition, early exposure to these chemicals can eventually cause cancer.

There is very good evidence regarding these hormone-disrupting chemicals in tire crumb, based on studies done at Yale and by the California Office of Environmental Health Hazard Assessment (OEHHA).[1]

A 2018 report by Yale scientists detected 92 chemicals in samples from 6 different artificial turf companies, including unused bags of tire crumb. Unfortunately, the health risks of most of these chemicals had never been studied. However, 20% of the chemicals that had been tested are classified as probable carcinogens and 40% are irritants that can cause asthma or other breathing problems, or can irritate skin or eyes.[2]

There are numerous studies indicating that endocrine-disrupting chemicals (also called hormone-disrupting chemicals) found in rubber and plastic cause serious health problems. Scientists at the National Institute of Environmental Health Sciences (which is part of NIH) have concluded that unlike most other chemicals, hormone-disrupting chemicals can be dangerous at very low levels, and the exposures can also be dangerous when they combine with other exposures in our environment.

That is why the Consumer Product Safety Commission has banned numerous endocrine-disrupting chemicals from toys and products used by children. The products involved, such as pacifiers and teething toys, are banned even though they would result in very short-term exposures compared to artificial turf or playground surfaces.

A report warning about possible harm to people who are exposed to rubber and other hormone disrupting chemicals at work explains that these chemicals "can mimic or block hormones and disrupt the body's normal function, resulting in the potential for numerous health effects. Similar to hormones, endocrine-disrupting chemicals can function at very low doses in a tissue-specific manner and may exert non-traditional dose–response because of the complicated dynamics of hormone receptor occupancy and saturation."[3]

Studies are beginning to demonstrate the contribution of skin exposure to the development of respiratory sensitization and altered pulmonary function. Not only does skin exposure have the potential to contribute to total body burden of a chemical, but also the skin is a highly biologically active organ capable of chemical metabolism and the initiation of a cascade of immunological events, potentially leading to adverse outcomes in other organ systems.

Scientific Evidence of Cancer and Other Systemic Harm

It is essential to distinguish between evidence of harm and evidence of safety. Companies that sell and install artificial turf often claim there is "no evidence children are harmed" or "no evidence that the fields cause cancer." This is often misunderstood as meaning the products are safe or are proven to <u>not</u> cause harm. Neither is true.

It is true that there no clear evidence that an artificial turf field has caused specific children to develop cancer. However, the statement is misleading because it is virtually impossible to prove any chemical exposure causes one specific individual to develop cancer.

As an epidemiologist, I can also tell you that for decades there was no evidence that smoking or Agent Orange caused cancer. It took many years to develop that evidence, and the same will be true for artificial turf.

I have testified about the risks of these materials at the U.S. Consumer Product Safety Commission as well as state legislatures and city councils. I am sorry to say that I have repeatedly seen and heard scientists paid by the turf industry and other turf industry lobbyists say things that are absolutely false. They claim that these products are proven safe (not true) and that federal agencies have stated there are no health risks (also not true).

However, we know that the materials being used in artificial turf and rubber playground surfaces contain carcinogens, and when children are exposed to those carcinogens day after day, week after week, and year after year, they increase the chances of our children developing cancer, either in the next few years or later as adults. That should be adequate reason not to install them in your community. That's why I have spoken out about the risks of artificial turf in my community and on a national level. The question must be asked: if they had all the facts, would any community choose to spend millions of dollars on fields that are less safe than well-designed natural grass fields?

Dangerously Hot and Hard Fields

I lived in Connecticut for several years while on the faculty at Yale and Vassar, and I know the climate well. When the weather is warm and/or sunny, it is usually quite pleasant to be outside – as long as you aren't on artificial turf or an outdoor rubber surface. Even when the temperature above the grass is 80 degrees Fahrenheit, artificial turf can reach 150 degrees or higher. Obviously, a 90 degree day is likely to be even hotter than 150 degrees on turf. That can cause "heat poisoning" as well as burns.

Artificial turf fields get hard as well. Turf companies recommend annual tests at 10 locations on each turf field, using something called a Gmax score. A Gmax score over 200 is considered extremely dangerous, and it is considered by industry to pose a death risk. However, the synthetic turf industry and American Society for Testing and Materials (ASTM), suggest scores should be even lower — below 165 to ensure safety comparable to a grass field. Will your community pay to have these tests conducted annually on all your public artificial turf fields?

The hardness of natural grass fields is substantially influenced by rain and other weather; if the field gets hard, rain or watering will make it safe again. In contrast, once an artificial turf field has a Gmax score above 165, it needs to be replaced because while the scores can vary somewhat due to weather, the scores will inevitably get higher because the turf will get harder. Gmax testing involves testing 10 different areas of a playing fields, to make sure all are considered safe. Some officials average those 10 scores to determine safety; however, experts explain that is not appropriate. If a child (or adult) falls, it can be at the hardest part of the field, which is why safety is supposed to be determined by the score of the hardest part of the field.

Environmental Issues

In addition to the health risks to school children and athletes, approximately three tons of infill materials migrate off of each synthetic turf field into the greater environment each year. About 2-5 metric tons of infill must be replaced every year for each field, meaning that tons of the infill have migrated off the field into grass, water, and our homes.[4] The fields also continuously shed microplastics as the plastic blades break down.[5,6] These materials may contain additives such as PAHs, flame retardants, and UV inhibitors, which can be toxic to marine and aquatic life. Microplastics are known to migrate into the oceans, the food chain, and drinking water, and they can absorb and concentrate other toxins from the environment.[7,8,9]

Synthetic surfaces also create heat islands.[10,11] In contrast, organically managed natural grass saves energy by dissipating heat, cooling the air, and reducing energy to cool nearby buildings. Natural grass and soil protect groundwater quality; biodegrade polluting chemicals

and bacteria; reduce surface water runoff; abate noise; and reduce glare.[12]

Envirofill and Alternative Infills

Envirofill artificial turf fields are advertised as "cooler" and "safer," but our research indicates that these fields are still at least 30-50 degrees hotter than natural grass. Envirofill is composed of materials resembling plastic polymer pellets (similar in appearance to tic tacs) with silica inside. Silica is classified as a hazardous material according to OSHA regulations, and the American Academy of Pediatrics specifically recommends avoiding it on playgrounds. The manufacturers and vendors of these products claim that the silica stays inside the plastic coating. However, sunlight and the grinding force from playing on the field breaks down the plastic coating. For that reason, even the product warranty admits that only 70% of the silica will remain encapsulated. The other 30% can be very harmful as children are exposed to it in the air.

In addition, the Envirofill pellets have been coated with an antibacterial called triclosan. Triclosan is registered as a pesticide with the EPA, and the FDA has banned triclosan from soaps because manufacturers were not able to prove that it is safe for long-term use. Research shows a link to liver and inhalation toxicity and hormone disruption. The manufacturer of Envirofill says that the company no longer uses triclosan, but they provide no scientific evidence that the antibacterial they are now using is any safer than triclosan. Microscopic particles of this synthetic turf infill will be inhaled by children, and visible and invisible particles come off of the field, ending up in shoes, socks, pockets, and hair.

In response to the concerns of educated parents and government officials, other new materials are now being used instead of tire crumb and other very controversial materials. However, all the materials being used (such as volcanic ash, corn husks, and Corkonut) have raised concerns, and none are proven to be as safe or effective as well-designed grass fields.

Conclusions

There have never been any safety tests required prior to sale that prove that any artificial turf products are safe for children who play on them regularly. In many cases, the materials used are not publicly disclosed, making independent research difficult to conduct. None of these products are proven to be as safe as natural grass in well-constructed fields.

I have cited several relevant scientific articles on artificial turf in this letter, and there are numerous studies and growing evidence of the harm caused by these synthetic materials. I would be happy to provide additional information upon request (dz@center4research.org).

I am not paid to write this statement. I am one of the many parents and scientists who are very concerned about the impact of artificial fields on our children. Your decision about artificial turf and playground surfaces can save lives and improve the health of children in your community. You owe it to your community to make sure that you know the risks of artificial turf and do all you can to protect your children from both the known risks and the suspected risks. Your decisions about artificial turf will be cited by other communities, making it even more important that your decision is based on scientific evidence, not on sales pitches by individuals with conflicts of interest.

Officials in communities all over the country have been misled by artificial turf salespeople. They were erroneously told that these products are safe. I hope you will be more skeptical of those misleading assurances. On the contrary, there is clear scientific evidence that these

materials are harmful. The only question is how much exposure is likely to be harmful to which of your children? We should not be willing to take such a risk. Our children deserve better.

Sincerely,

Diana Zuckerman, Ph.D.
President

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Diana Zuckerman, Ph.D.
President
National Center for Health Research
Cancer Prevention and Treatment Fund
1001 Connecticut Ave, Suite 1100
Washington, DC 20036
Twitter | Facebook
www.center4research.org | www.stopcancerfund.org
CFC # 11967