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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Proceeding	85318060
Applicant	Monster Cable Products, Inc.
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Submission	Request for Remand and Suspension of Appeal
Attachments	REQUEST FOR REMAND 12158 (292912).pdf(43025 bytes) Request for Reconsideration 12158 (292913).pdf(50946 bytes) Lance Rake Declaration 1-31-14 Executed (292492).pdf(200542 bytes) EXHIBIT A - Rake Dec (163812).pdf(142648 bytes) EXHIBIT B - Rake Dec (163810).pdf(991913 bytes)
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Date	02/06/2014

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD**

Applicant: Monster, Inc.
Serial Number: 85318060
Filing Date: May 11, 2011
Mark:



Examining Atty: Kim Teresa Moninghoff, Esq.
Law Office: 113

Commissioner for Trademarks
P.O. Box 1451
Alexandria, Virginia 22313-1451

**REQUEST FOR REMAND
AND SUSPENSION OF APPEAL**

Applicant Monster, Inc. respectfully requests that the Board remand this application to allow the Examining Attorney an opportunity to reconsider the Final Office Action, issued September 10, 2012, based on compelling new evidence.

As detailed in Applicant's Request for Reconsideration, Registration has been refused under Section 23 of the on the ground that this design is believed to be functional, and also because the design is believed to be a generic product design. This refusal involves highly technical patent references. Applicant has obtained a declaration from a technical and industry expert, Lance Rake, a Professor of Design at The University of Kansas in Lawrence, Kansas, to provide his expert opinion on the nature of the mark and the referenced patent(s), among other things. Applicant submits that this additional information and expert declaration will better inform the PTO of the issues, and possibly render the appeal moot. It will also better inform the

TTAB of the issues, so that the tribunal can fully understand the complex issues on appeal and make an informed decision if this case proceeds on appeal.

Accordingly, Applicant respectfully requests remand of this application to allow the Examining Attorney to time to review and consider Applicant's Request for Reconsideration (attached). Applicant also requests the suspension of the appeal pending disposition of the Request for Reconsideration.

MONSTER, INC.

Dated: February 6, 2014

By: /Linda K. McLeod/
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REQUEST FOR RECONSIDERATION OF FINAL OFFICE ACTION

Applicant Monster, Inc. respectfully requests the Examining Attorney reconsider the Final Office Action, issued September 10, 2012.

I. Introduction

The application seeks registration for the design of a headphone cable as illustrated below:



The design consists of “the curved outside contours of a headphone cable that give way to sides of the cable jacket that are wider than they are thick.” Registration has been refused under

Section 23 of the on the ground that this design is believed to be functional, and also because the design is believed to be a generic product design. More specifically, the Examining Attorney found applicant's design functional based primarily on applicant's utility patent (U.S. Patent No. 8068633B2, the '633 patent, entitled "Headphone Cable Splitter"), which includes drawings of a flat cable with curved outside contours as an embodiment of the invention. Additionally, the Examining Attorney concluded that Applicant's design is one of only a few available alternatives for achieving some of the advantages associated with "flat headphone cables" as identified in the specification of Applicant's utility patent (i.e., resisting tangling, lying flat on the wearer's body and face, accommodating internal wires side-by-side.) Further, the Examining Attorney concluded that so-called "more complicated" alternative designs "likely . . . are more costly to manufacture than applicants simple, flat cable design." The Examining Attorney also pointed to Applicant's and its competitors' advertising that discuss certain perceived advantages of "flat" headphone cables. Regarding genericness, the Examining Attorney concluded that Applicant's design is "so common in the industry that it cannot be said to identify a particular source."

Applicant submits that both grounds for refusal should be withdrawn and that the mark should be approved for registration on the Supplemental Register. In support, Applicant submits the attached declaration of Lance G. Rake, Professor of Industrial Design at the University of Kansas and industrial designer with over 40 years of experience as a designer and educator. As shown and explained by Professor Rake, the most prominent design feature of Applicant's trademark, the "curved outer contour," is not claimed in Applicant's patent nor disclosed as a functional element in the patent's specification. Rather, it is an arbitrary design feature; an aesthetic design choice not driven by performance or functional considerations. Furthermore, Professor Rake explains that the images the Examining Attorney relied upon as evidence that

Applicant's design is generic do not provide sufficiently clear images for a designer of ordinary skill to discern the actual design elements of the products shown. Therefore, those images are not competent evidence that *applicant's* particular design is commonplace. Accordingly, Applicant's design is neither functional nor generic and is eligible for trademark registration.

II. Discussion

A. Legal Standards

As the TMEP explains, when a utility patent discloses a design that is also the subject of a trademark application, it is important to read the patent to determine whether the it actually claims the features presented in the proposed mark. If the utility patent does claim the design feature, it is strong evidence that the particular product features is functional. If it does not claim the feature, or if the feature shown or mentioned in the patent is merely an arbitrary, ornamental, or incidental element, "then the probative value of the patent as evidence of functionality is substantially diminished or negated entirely." TMEP § 1202.02(a)(v)(A), citing, *TrafFix*, 532 U.S. 23, 34 (2001); *In re Udor U.S.A., Inc.*, 89 USPQ2d 1978, 80-82 (TTAB 2009) (finding that where the patent's language and a detailed comparison between the identified features of the patent drawing with the visible features of the trademark drawing established that the patent claims involved components neither shown nor described in the trademark design, the utility patent did not support a finding of functionality); *In re Weber-Stephen Prods. Co.*, 3 USPQ2d 1659 (TTAB 1987) (patent evidence did not show utilitarian advantages of barbeque grill design sought to be registered).

The Court in *Traffic* provided examples of features that, though disclosed in a utility patent, might still qualify for trademark registration and protection:

In a case where a manufacturer seeks to protect arbitrary, incidental, or ornamental aspects of features of a product found in the patent claims, *such as arbitrary curves in the legs* or an ornamental pattern painted on the springs, a different result might obtain. There the manufacturer could perhaps prove that those aspects do not serve a purpose within the terms of the utility patent.

TrafFix, 532 U.S. at 34.

B. Applicant's Patent

Claim 1, the sole independent claim, and dependent claim 2 read as follows:

1. A headphone cable having the following sections:
a unitary cable section having left and right audio channel conductors, said unitary cable section having a cross-sectional width and thickness, said width being substantially greater than said thickness; and left and right cable sections electrically coupled to said left and right audio channel conductors, respectively, of said unitary cable section, and for connecting to the left and right earpieces of a headphone, said left and right cable sections having cross-sectional widths and thicknesses, said widths being substantially greater than said thicknesses, the left and right cable sections being oriented such that the widths of said left and right cable sections are substantially perpendicular to the width of said unitary cable section.
2. The headphone cable of claim 1, further having a splitter for splitting said unitary cable section into said left and right cable sections.

It is a "bedrock principle" of patent law that a patent's claims— not the abstract, specification, or drawings—define the legal scope of the invention. *Phillips v. AWH Corp.*, 415 F. 3d 1303, 1312 (Fed. Cir. 2005). Because the patentee is required to "define precisely what his invention is," it is "unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms." *Id.* Claims and claim terms are to be given their ordinary and customary meaning, as understood by a person of ordinary skill in the art at the time of the invention. *Phillips* at 1313. As the Federal Circuit has stated, the ordinary meaning of claim terms is sometimes apparent even to lay people, including judges. In those cases, claim construction involves the application of the widely accepted meaning of commonly understood words. *Phillips* at 1314.

Here, Claim 1 of applicant’s utility patent describes cables with “cross-sectional width and thickness, said width being substantially greater than said thickness . . .” Claim 1, col. 4, ll. 10-14. As Professor Rake states, the meaning of this portion of Claim 1 is plain to persons of ordinary skill in the art of designing headphone cables—the claim covers cable designs where the cable sections have:

- a. Cross-sectional width and thickness, and where
- b. Said width is substantially greater than said thickness.

It is not necessary to read beyond Claim 1 to understand the scope of this invention. The words are clear and unambiguous. They do not recite “flat” cables. Nor do they recite cables with “curved outer contours.”

While it is true that the drawings in the patent’s specification show flat cables with curved outer contours, such images do not make those specific features elements of the claimed invention. Indeed, the Federal Circuit has “repeatedly warned against confining” a patent’s claims to a specific embodiment shown in the specification. *Philips* at 1323.

Features need not be claimed in a utility patent to serve as evidence of functionality; statements in the specification “illuminating the purpose served by a design may constitute equally strong evidence of functionality.” *In re Becton, Dickinson and Co.*, 675 F.3d 1372, 1375 (Fed. Cir 2012) But as noted above, the Supreme Court in *TrafFix* recognized that not every feature or structure disclosed in a patent necessarily is “functional.”

In this case, the specification's text does not mention "curved outer contours," much less ascribe to them any functional purpose or advantage.¹ Furthermore, and as Professor Rake's declaration establishes, the "curved outer contours" of Applicant's design are akin to the "curves in the legs" of the hypothetical table mentioned in *Traffix*—the curved outer contours do not serve a purpose within the terms of Applicant's utility patent, but rather are arbitrary, incidental to function, and ornamental. In Professor Rake's opinion:

Edge treatment such as this can be important design elements and can materially affect how consumers and users of a product perceive a product. As one example, Apple's computers, tablets, and phones are known as much for their innovative designs as for their technical performance, and edge treatments are significant elements of many of Apple's designs. For example, according to Walter Isaacson, author of the acclaimed biography of Apple founder Steve Jobs, "Jobs spent days agonizing over just how rounded the corners [of one Apple product] should be." In my opinion, the edge treatment of Monster's cable design likewise has an impact on how consumers and users perceive and appreciate the product from an aesthetic standpoint. The rounded edges of Monster's design convey an attractive contemporary aesthetic. Other design alternatives, such as the ones I propose in Exhibit B, convey different impressions.

Rake Declaration, paragraph 21.

As such, Applicant's design is not functional, regardless of whether the drawings in applicant's utility patent depict that design as an embodiment of Applicant's invention.

C. Alternative Designs

In addition to showing that Applicant's trademark is arbitrary, incidental to function, and ornamental, Professor Rake also provides numerous alternative designs for headphone cables that practice applicant's utility patent and that can achieve the functional advantages described in that utility patent. The existence of functionally equivalent alternative designs is probative that a

¹ The Examining Attorney also pointed to third party advertisements supposedly reflecting Applicant's design and touting its functional benefits. As with the patent specification, those advertisements do not attribute any function to "curved outer contours." Like Applicant's utility patent, these third party advertisement are not evidence of functionality.

design sought to be registered as a trademark is non-functional. TMEP § 1202.02(a)(v)(B), citing *Dietrich*, 91 USPQ2d at 1636, citing *Valu Eng'g*, 278 F.3d at 1276, 61 USPQ2d at 1427

In the Final Office Action, the Examining Attorney minimized the significance of design alternatives previously proposed by applicant, concluding that they would impair functionality and likely be more expensive to manufacture. Those conclusions were based only on conjecture and speculation. Those speculative conclusions, moreover, would not apply to Professor Rake's alternative designs. As Professor Rake explains, each of his alternative design concepts can be used to practice the invention disclosed and claimed in the '633 patent. Specifically, each of his designs yields a headphone cable that is wider than it is thick, that resists tangling, that can accommodate internal wiring, and that would lie flat against the user's body or face, all without sacrificing performance compared to the design shown in the '633 patent. Furthermore, each of Professor Rake's proposed alternative designs could be produced without adding to the cost or complexity of manufacture. Rake Declaration, paragraphs 19, 21.

D. No Evidence of Genericness

The Examining Attorney relied on print-outs from the Internet as evidence that third-parties are using and selling headphone cables with Applicant's design, such that the design is "common in the industry" and "cannot be said to identify a particular source." Those print-outs, however, do not reflect use of Applicant's particular design, namely a cable with "curved outside contours of a headphone cable that give way to sides of the cable jacket that are wider than they are thick." In particular, as Professor Rake explains (Rake Declaration, paragraph 22), the images provided of headphone cables from the brands listed below lack sufficient detail and clarity for a skilled designer to determine whether those cables incorporate Applicant's design:

JAYS brand, ILUV brand, PURGEAR brand, LUXMO brand, SKULL CANDY brand, GOGROOVE brand, JLAB brand, PINEAPPLE ELECTRONICS brand, CYGNETT brand, PAINTED TUNES brand, SONY brand, ROCKETFISH brand, JVC brand, PHILIPS brand, and HELLO KITTY brand.

Therefore, these print-outs are not competent or reliable evidence of genericness.

Furthermore, the Examining Attorney presented no evidence regarding sales, advertising, or marketing of any of these headphone products. Indeed, there is no evidence of record that any of these products has been sold in the United States. And, even assuming their presence on the Internet reflects offers for sale, there is no evidence regarding the date(s) of first sale, whether sales have been continuous, or the extent of any such sales in terms of units and dollar value. Thus, the record lacks any basis to conclude that any of these headphone products have achieved any level of market penetration or commercial success. Therefore, even assuming that the images contained in these Internet print-outs reflect use of Applicant's design by other manufacturers, there is no competent or reliable evidence to prove that their commercial use has become so prevalent or pervasive as to render Applicant's original, ornamental, non-functional design generic.

For all these reasons, the refusal to register Applicant's mark based on alleged genericness should be withdrawn.

III. Conclusion

For the reasons set forth above, Applicant respectfully requests that this application be approved for registration on the Supplemental Register.

MONSTER, INC.

Dated: February 6, 2014

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Monster, Inc.
Serial Number: 85318060
Filing Date: May 11, 2011
Mark:



Examining Atty: Kim Teresa Moninghoff, Esq.
Law Office: 113

Commissioner for Trademarks

P.O. Box 1451

Alexandria, Virginia 22313-1451

DECLARATION OF LANCE RAKE

I, Lance Rake, submit this declaration on behalf of applicant Monster, Inc.

1. For over 40 years I have been studying, practicing, and teaching industrial design.
2. Since 1987, I have taught Industrial Design at The University of Kansas, Lawrence Kansas, where I currently am a Professor of Design. From 1995-2003, I served as the Acting Director of the Center for Design Research at the university. I have taught and continue to teach numerous course in design, including all of the studio design courses offered at the University
3. I have also taught full-time at Auburn University, and UNITEC (formerly Carrington Technical Institute) in Auckland, New Zealand.

4. Since 2000, I have also been a designer/consultant to Infusion Design, Bonner Springs, Kansas.
5. Working alone or with other professionals, I have designed commercial products, consumer products, interiors, graphics, packaging, and exhibits.
6. In 2004, the editors of ID Magazine included me in their “Design 50” profile of one designer from each of the 50 states.
7. I am the inventor or co-inventor of numerous design and utility patents for which applications are pending or patents have been granted by the United States Patent and Trademark Office. These patents and applications are listed in my cv, which accompanies this declaration as Exhibit A.
8. I have also served as an expert witness in several cases where design patents were at issue, including one ITC case involving the design for a USB Drive.
9. My experiences as an industrial designer, educator, and expert witness qualify me to opine on the issues presented in Monster, Inc.’s pending trademark application, Serial Number 853180060, for its headphone cable design. As I understand it, the mark at issue is depicted above, and has been described by Monster as consisting of “the curved outside contours of a headphone cable that give way to sides of a cable that are wider than they are thick.”
10. I understand that this application has been rejected based on the Trademark Attorney’s findings that the design shown in Monster’s trademark application is also disclosed in the drawings of a utility patent, U.S. Patent No. 8068633B2, (the ‘633 patent), entitled “Headphone Cable Splitter.” The rejection focused on the patent’s discussion of the advantages of a “flat” cable, including an “inherently more rigid” structure and a “larger

cross sectional area” that “facilitates passage of multiple conductors in a side-by-side configuration” and “can accommodate added functionality such as conductors for a microphone.” Col. 1., ll. 17-26. Those statements appear in the patent’s specification, the portion that, along with the drawings, describes and explains the invention and how it represents an improvement over prior devices. The examining attorney also looked to the patent’s drawings, which, according to the examining attorney, illustrate cables with curved outside contours.

11. I understand that the Trademark Attorney further concluded that Monster’s design is one of just a few alternatives for the design of headphone cables.

12. I disagree with these conclusions:

- a. First, the claims of the ‘633 patent do not mention or otherwise include as limitations either “flat” cables or cables with “curved outside contours.”
- b. Second, numerous alternative designs exist for practicing the invention actually claimed in the ‘633 patent and for achieving the functional advantages discussed in the ‘633 patent.

13. Regarding the ‘633 patent, my understanding is that the patent’s claims— not the abstract, specification, or drawings—define the legal scope of the invention. I further understand that the Court of Appeals for the Federal Circuit has described this rule as a “bedrock principle” of patent law. *Phillips v. AWH Corp.*, 415 F. 3d 1303 (Fed. Cir. 2005). I further understand that the Federal Circuit has explained that because the patentee is required to “define precisely what his invention is,” it is “unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.” *Phillips, citing White v. Dunbar*, 119 U.S. 47, 52, 7 S.Ct. 72, 30 L.Ed. 303

(1886); *see also Cont'l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 419, 28 S.Ct. 748, 52 L.Ed. 1122 (1908) ("the claims measure the invention"); *McCarty v. Lehigh Valley R.R. Co.*, 160 U.S. 110, 116, 16 S.Ct. 240, 40 L.Ed. 358 (1895) ("if we once begin to include elements not mentioned in the claim, in order to limit such claim ..., we should never know where to stop"); *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339, 81 S.Ct. 599, 5 L.Ed.2d 592 (1961) ("the claims made in the patent are the sole measure of the grant").

14. Under the rules of claim construction established by the Federal Circuit, claims and claim terms are to be given their ordinary and customary meaning, as understood by a person of ordinary skill in the art at the time of the invention. In some cases, that ordinary meaning is apparent even to lay people, including judges. In those cases, claim construction involves "little more than the application of the widely accepted meaning of commonly understood words. *See Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir.2001) (holding that the claims did "not require elaborate interpretation").
15. Monster's '633 utility patent presents such a case where the ordinary and customary meaning of claim language is apparent from the claims themselves, making further claim construction unnecessary.
16. Claim 1, the sole independent claim, and dependent claim 2 read as follows:
 1. A headphone cable having the following sections:
a unitary cable section having left and right audio channel conductors, said unitary cable section having a cross-sectional width and thickness, said width being substantially greater than said thickness; and left and right cable sections electrically coupled to said left and right audio channel conductors, respectively, of said unitary cable section, and for connecting to the left and right earpieces of a headphone, said left and right cable sections having cross-sectional widths and thicknesses, said widths being substantially greater than said thicknesses, the left and right cable sections being oriented such that the widths of said left and

right cable sections are substantially perpendicular to the width of said unitary cable section.

2. The headphone cable of claim 1, further having a splitter for splitting said unitary cable section into said left and right cable sections.

17. As can be readily seen, Claim 1 recites cables with “cross-sectional width and thickness, said width being substantially greater than said thickness . . .” Claim 1, col. 4, ll. 10-14.

18. The meaning of this portion of Claim 1 is plain—the claim covers cable designs where the cable sections have:

- a. Cross-sectional width and thickness, and where
- b. Said width is substantially greater than said thickness.

19. It is not necessary for a person of ordinary skill in the art, such as me, to read beyond Claim 1 to understand the scope of this invention. The words are clear and unambiguous. Based on the language of Claim 1, I can envision numerous aesthetic designs that can be used for practicing this invention, and I reproduce them in the attached Exhibit B to my declaration. In my opinion, each of these designs can be used for practicing the invention disclosed and claimed in the ‘633 patent. Each has both width and thickness, and in each case, the width is substantially greater than the thickness. Each of my proposed alternative designs, moreover, can be used to produce audio headphone cables that can accommodate left and right audio channel conductors, as Claims 1 and 2 require. Although the patent’s specification describes the cables lying flat or resisting tangling as benefits of the invention, the patent’s claims do not include any such limitations, and thus, it is my understanding that these advantages, while perhaps desirable, are not requirements of the claimed invention. Nevertheless, each of my proposed alternative

designs can accommodate left and right audio channel conductors, and each of those alternative designs would produce cables that resist tangling.

20. Equally significant, nothing in the language of Claims 1 and 2 of the '633 patent mentions or requires cables that have curved outside contours. Although the drawings in the specification of the '633 patent depict cables with such curved outside contours, I understand that those images depict one of numerous possible embodiments of the invention.

21. In my opinion as an industrial designer with decades of practical and academic experience, the use of curved outside contours in Monster's cable design represents an arbitrary, ornamental design choice, not driven by function. Edge treatment such as this can be important design elements and can materially affect how consumers and users of a product perceive a product. As one example, Apple's computers, tablets, and phones are known as much for their innovative designs as for their technical performance, and edge treatments are significant elements of many of Apple's designs. For example, according to Walter Isaacson, author of the acclaimed biography of Apple founder Steve Jobs, "Jobs spent days agonizing over just how rounded the corners [of one Apple product] should be." In my opinion, the edge treatment of Monster's cable design likewise has an impact on how consumers and users perceive and appreciate the product from an aesthetic standpoint. The rounded edges of Monster's design convey an attractive contemporary aesthetic. Other design alternatives, such as the ones I propose in Exhibit B, convey different impressions. And significantly, I would expect that these alternative designs could be produced without adding to the cost or complexity of manufacture. Edge designs

rarely changes the cost, tooling, or performance of a product. It can, however, significantly affect the overall appearance and ultimately its appeal in the marketplace.

22. I have also reviewed photographic images of headphones that I understand the Examining Attorney has relied upon as evidence that Monster’s cable design is commonplace. I personally have not encountered any of the headphones shown in these images, and therefore I cannot comment on whether these photographs represent actual products made and sold in the United States. As an industrial designer, however, I am able to comment on whether these photographs contain sufficient clarity and detail to enable anyone to discern whether these images depict headphone cables that incorporate Applicant’s design—namely, “the curved outside contours of a headphone cable that give way to sides of a cable that are wider than they are thick.” In my opinion, these images do not present reliable visual evidence that Applicant’s design has been copied or used by other manufacturers, or that it is a commonplace design.

I declare under penalty of perjury of the laws of the United States that the foregoing is true and correct under 28 U.S.C. s§ 1746. This declaration was executed on January ____, 2014.

Signature: _____
Lance Rake
Professor of Design
The University of Kansas

Prof.
**LANCE
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Experience

For over 35 years, I have been learning, practicing, and teaching industrial design, often at the same time. Currently Professor of Industrial Design at the University of Kansas, I have also taught full-time at Auburn University and UNITEC (formerly Carrington Technical Institute) in Auckland, New Zealand. Additionally, I have taught short courses at Konstfackskolan in Stockholm and been a visiting professor at Staffordshire University in Stoke-on-Trent, England and the Indian Institute of Technology-Bombay in Mumbai, India. My design research has been supported by private and public grants, and findings presented at national and international design conferences and institutions. For several years I have been using my experience as both teacher and practitioner of design to serve as an expert witness in design patent infringement and product liability cases.

Working alone or in collaboration with other professionals, I have designed commercial products, consumer products, interiors, graphics, packaging, and exhibits. In 2004, the editors at ID Magazine chose the "Design 50"- profiling one designer in each state. I was honored to represent Kansas.

Recently, my research efforts have been focussed toward using design to create sustainable craft-based enterprises in rural communities in the US, Africa, and India.

2012

The Indian Institute of Technology-Bombay, Mumbai, India
Visiting Professor
Bamboo Studio, Industrial Design Center

1987-present

The University of Kansas, Lawrence, Kansas
Professor of Design,
Acting Director, Center for Design Research, 1995-2003

2000-present

Infusion Design, Bonner Springs, Kansas
Consultant

1995-2005

The New Deal Playing Card Company, Leawood, Kansas
Vice President Strategic Product Development

2001

Leon Paul, Ltd, London, England
Design Consultant (sabbatical leave)

1993

Hans Skillius Design, Halmstad, Sweden
Design Consultant (sabbatical leave)

1985-86

UNITEC Institute of Technology, Auckland, New Zealand
Course Supervisor, Design

1980-84

Auburn University, Auburn, Alabama
Assistant Professor, Industrial Design

1979-80

Interface Design Group, Milwaukee, Wisconsin
Manager, Industrial Design

1978-79

Stan Johnson Design, Milwaukee, Wisconsin
Design Director

1975-78

Anacomp (div Bell & Howell Co.), Hartford, Wisconsin
Manager, Design Services

1974-75

Prism, Inc., Racine, Wisconsin
Industrial Designer

Education

1982

Master of Product Design, North Carolina State University
Raleigh, North Carolina

1974

Bachelor of Fine Arts, The University of Kansas
Lawrence, Kansas

2008

IDSA Continuing Education Certificate
“How to Serve as an Expert Witness in Design Patent Litigation”
Taught by Perry J. Saidman and Cooper C. Woodring

Expert Witness

I particularly enjoy being asked to serve as a legal expert- it pulls together the full extent of my experience as a design educator, practitioner, writer, and presenter. The work is creative, demanding, precise, and intensely scrutinized.

2012

Amster Rothstein & Ebenstein LLP. New York, NY
Design Analysis for design patent infringement case (bedroom slippers)

2011-2012

Miller Canfield, Chicago, IL
Design Analysis, Report for a design patent infringement case (bedroom slippers)

2011-2012

White & case, LLP. New York, NY.
Design Analysis, Report, and Deposition Testimony for USB Drive design patent case before the ITC

2010-11

Baker Botts L.L.P., Houston, TX.
Design Analysis, Report, for a design patent infringement case (juice bottle caps).

2010-11

Polsinelli Shughart, P.C., St. Louis, MO.

Design Analysis, Report, for a design patent infringement case (refrigerated floral cases).

2009

Husch Blackwell Sanders LLP, St. Louis, MO.

Color Analysis, for a trade dress case.

2008

Allen, Dyer, Doppelt, Mibrath & Gilchrist, P.A., Orlando, FL.

Design Analysis, for a design patent infringement case (apparel).

2008

Allen & Vellone, P.C., Denver, CO.

Design Analysis, for a design patent infringement case (apparel).

2007-present

Wooten, Honeywell, Kimbrough, Gibson, Doherty and Normand, P.A., Orlando, FL.

Design Analysis, Testing, for a product liability case (consumer seating).

2000-2001

Holbrook Law Office, Orlando, FL.

Design Analysis, Testing, for a product liability case (contract seating).

1999-2000

Rausch Hendicks German May, Kansas City, MO.

Defense expert for design patent infringement case.

1998

Skepnek & Maddox, Lawrence, KS. Center for Design Research

The University of Kansas. Created forensic computer animation for a medical malpractice case.

1994-1996

Purdy & Flynn, Fort Lauderdale, FL.

Design Investigation, Analysis, Modeling for a product liability case.

1992-1994

Holbrook & Hardy, Orlando, FL.

Design Investigation, Analysis, Modeling for a product liability case.

Museums, Collections

1998

The line of New Deal Playing Cards, designed from 1995 was added to the permanent collection at the Deutsches Spielkarten-Museum in Leinfelden-Echterdingen, Germany.

New Deal cards are also in the Stuart and Marilyn R. Kaplan Playing Card Collection, the most comprehensive collection in the United States.

Selected Grants

2011

General Research Fund, the University of Kansas.

“A Pilot Project to Develop and Implement the Alodia Afrika Design Office”.

2010

Transportation Research Institute, the University of Kansas.

“Driving Without Distraction: We Have an App for That”.

2004

General Research Fund, the University of Kansas.

“Design of the Next Generation General Aviation Aircraft Interior”.

1999

General Research Fund, the University of Kansas
“Design of High- Performance Titanium Sabre using 3D Solid Modeling,
Testing, and Evaluation Technologies”

1998

United States Olympic Committee.
“Fencing Shoe Design”
Consultant with Dr. Mark Geil, Georgia Institute of Technology.

1993

General Research Fund, the University of Kansas.
“The Electronic Mock-up as a Conceptual Tool for Industrial Designers”.

2000 2001

Research and Development Fund, the University of Kansas.
“Proposal Development for NASA’s University Earth System Science
(UnESS) Program”.
Consultant with Dr. Mark Ewing et al

1993

Intergraph Corporation, USA, and Intergraph Sverige, AB.
Equipment grant.

1989

General Research Fund, the University of Kansas.
“Product Development Using an Alternative Design Strategy”.

1988

SOR, Inc. Olathe, Kansas
“Using Traditional Materials and New Technologies in an Alternative Design Strategy”.

1984

Research Grant-In-Aid, Auburn University.
“The Efficacy of Training on the Development of Creative Thinking Ability”. Lance G.
Rake, Dr. Janet B. Taylor

Additional Grants

The following grants were written and received by me as the Acting Director of the KU Center for Design Research. I assembled the design teams, organized the projects, and dispersed funding. I consider the work I’ve done in this capacity as some of the most rewarding in my career.

2006

Bass Pro Shop, Springfield, Missouri
Center for Design Research, The University of Kansas.
“Adventure Travel Luggage.”

2006

Hunter Fans, Memphis, Tennessee
Center for Design Research, The University of Kansas.
“Exploring Innovations in Fan Design.”

2005

Wenzel, St. Louis, Missouri
Center for Design Research, The University of Kansas.
“New Product Ideas for Family Camping Tents.”

2003

Big Dog Motorcycles, Wichita, Kansas
Center for Design Research, The University of Kansas.
“Portable Outdoor Exhibition Space.”

2002

Cardinal Brands, St. Louis, Missouri
Center for Design Research, The University of Kansas.
“New Product Ideas for the Scrapbook Market.”

2001-2002

Cardinal Brands, St. Louis, Missouri
Center for Design Research, The University of Kansas.
“Back to School Product Design. Investigation, Analysis, and Design.”

2001-2002

Infusion Design, Bonner Springs, Kansas
Center for Design Research, The University of Kansas.
“New Product Opportunities in the Recreational Boat Industry.
Investigation, Analysis, and Design.”

1999-2000

MountainHigh Coachworks, Ontario, California
Center for Design Research, The University of Kansas. “Recreational Vehicle
Design for a New Market Segment. Investigation, Analysis, and Design.”

1999

Trico Manufacturing, Pewaukee, Wisconsin
Center for Design Research, The University of Kansas.
“Design of a Closed System Bearing Oiler”.

1995-1998

FENA DESIGN, St. Cloud, Minnesota
Small Business Innovation Research Program Grant.
Center for Design Research, The University of Kansas.
Jay Johnson, Lance G. Rake, et al.

1995

U.S. Department of Agriculture. North Central Region
Sustainable Agriculture Research and Education Program
Center for Design Research, The University of Kansas.
Dan Nagengast, Lance G. Rake.

1994

Compaq Computers, Houston, Texas
Center for Design Research, The University of Kansas.

1994

Learjet, Wichita, Kansas
Center for Design Research, The University of Kansas.

Teaching Awards

2010

Outstanding Teacher- Department of Design
University of Kansas Center for Teaching Excellence

Student Awards

2003

NASA Langley Research Center, Hampton, VA
‘Revolutionary Vehicles: University Student Competition’.
Center for Design Research team achieve a third tier finish in this national competition
by presenting innovative concepts for a system that would use advanced small aircraft to
relieve road and air gridlock and increase access to the nation’s more than 5,000
public-use airports.

2003

Industrial Design Excellence Award (IDEA).

Brian Carter, a student of mine at the Center for Design Research, was named a gold winner in the prestigious 2003 Industrial Design Excellence Awards (IDEA) competition, an international design competition co-sponsored by "Business Week" magazine and the Industrial Designers Society of America (IDSA).

2003

NASA Langley Research Center, Hampton, VA

Revolutionary Vehicles: University Student Competition.

A team of my students at the Center for Design Research place third in this national competition by presenting innovative concepts for the interior of a highly automated aircraft-part of NASA's SATS (Small Aircraft Transportation System) program.

1990

Design 90

Tim Gorman, a graduate student, was a finalist in this prestigious automotive design competition (one of 3).

1989

Zebco/ Quantum/ Motorglide Student Design Competition

Jon Taylor, and undergraduate student, won this national design competition.

1989

Industrial Design Excellence Award (IDEA).

Jon Taylor placed 3rd in the student category.

1988

Domus Academy, Milan, Italy

Chris Frank won the Domus Academy Scholarship, the only one offered to a North American student.

Patents

2012

Process for Making Braided Bamboo Laminated Composite Tubing

US Provisional Patent

2012

Process for Making Structural Tubing with Bamboo and Reinforcing Fiber Material

US Provisional Patent

2009

Rubbermaid

Power System

US Utility Patent US20090152944

2008

James Wilmsen

Extension for a Golf Club Shaft and Method of Installing the Same

US 20080081708

2007

Hodgdon/Wright Enterprises

Fishing Bobber

US Utility Patent Pending

2007

Cramer, Inc.

Footstool/Ladder

US Utility Patent Pending

2005-2006

Schroeder & Tremaine

Temperature Gauge/ Barometer

US Design Patent D 538694

2003

Leon Paul Ltd, London.

Protective Fencing Mask (with Barry Paul)

US 20030070202

US 20020157167

US 6,701,536 B2

US 6,820,286 B2

1995-1998

The New Deal Playing Card Company. Leawood, Kansas

Ergonomic Playing Cards.

5490676

1982

Doolittle & Wellington, Milwaukee, Wisconsin

D 265146

Publications/Presentations

2013

Two Bamboo Bicycle prototypes I designed and developed in India will be presented at the North American Handmade Bicycle Show in Denver, CO.

2012

Presentation entitled "Think Wrong" present before faculty and graduate student body at The Industrial Design Center, Indian Institute of Technology, Mumbai, India in October, 2012.

2012

Presentation entitled "Why Design Matters" present before faculty and graduate student body at Orchid International School, Nashik, India in September, 2012.

2012

Presentation entitled "What Little I Have Learned" present before faculty and design student body at Nelson Mandela Metropolitan University in Port Elizabeth, South Africa in April, 2012.

2010

Paper entitled "On Linking Customer Requirements to Surfaces" accepted for presentation at the 13th International Conference on Metrology and Properties of Engineering Surfaces being held at the National Physical Laboratory in London, April 2011.

B.-G. Rosén, M. Bergman, H. Skillius, L. Eriksson, L. Rake

2010

Architect, Oct., 2010. "The Pit That Swallowed a City"- *Elizabeth Evitts Dickinson*.

Article written about the ICSID 2009 Interdesign workshop held in Malmberget, Sweden.

I was quoted several times about the role designers play when we consider how to move populations as the result of natural or ecological events.

2008

"Unapologetically American" presented at the SVID Designdagen conference at Halmstad University, Halmstad, Sweden.

2007

"Towards Reality in Industrial Design" presented at the Institute for Design, Umea University, Umea, Sweden. Attended by faculty and graduate students Industrial, Transportation, and Interaction Design.

2007

"My Life Aboard the Titanic" presented at Konstfackskolan, the national art & design school, Stockholm, Sweden. Attended by Industrial Design faculty, undergraduate, and graduate students.

2007

“Industrial Design, Learning to Live Without Modernism” paper presented for Industrial Design and Innovation Engineering graduate students and faculty at Halmstad University, Halmstad, Sweden.

2005

SVID, Swedish Society of Industrial Design, Halmstad, Sweden
“The Future of Graduate Design Education”, invited presentation for “Designdagen”- Swedish Design Day. 2005 has been designated as “Design Year”

2004

Halmstad University, Halmstad, Sweden
“Industrial Design Education and Practice in a Multidisciplinary and International Context”, invited presentation for administrators, faculty, and students.

2003

9th Annual National Ergonomics Conference and Exposition, Las Vegas
“Ergonomics: A Commonsense Approach for Industrial Designers”

1994

Symposium Design Thinking- Expressive Solutions, Helsinki, Finland “The Beauty of Chaos; the Chaos of Beauty”

1991

Product Semantics and Visual Semiotics in Design Conference
Helsinki, Finland
“Toward Reality in Industrial Design”

1990

Industrial Designers of America Conference on Design Education,
Pasadena, California “Industrial Design: Learning to Live Without Modernism”-
published in the proceedings.

1989

School of Visual Arts’ third annual National Conference on Liberal Arts
and the Education of Artists, New York “Design is the Problem”-
published in the proceedings.

1989

Industrial Designers of America Conference on Design Education, Minneapolis “Taking
Another Look at Design Education”-published in the proceedings.

1986

National Art and Design Education Symposium, Auckland, New Zealand
Invited Panel Member

1985

New Zealand Society of Industrial Designers
regional meeting, Auckland, New Zealand
“Experiential Learning in Industrial Design Education”

1984

Patient Counseling and Community Pharmacy, 1984. “The Importance of Privacy in
Patient Consultations”, *Dr. Bruce Berger, Bill G. Felkey, Lance G. Rake.*

1984

“Sketching Techniques for Industrial Designers” videotape produced by the Learning
Resource Center, School of Pharmacy, Auburn University.

1984

Research/ Auburn University- describes a project I directed for the design of commercial
vehicle cabs for General Motors.

International Experience

2012

Sabbatical leave in Mumbai, India. Conducted research at the Bamboo Studio, Industrial Design Center, Indian Institute of Technology-Bombay.

2012

Conducted research in Hamberg, Port Elizabeth and New London, South Africa.

2010

Visited major Industrial Design offices in Paris to develop an internship program for design students at the University of Kansas.

2009

Selected by ICSID (International Council of Societies of Industrial Design) to participate in the 2009 Interdesign- City Move event. This event has received additional support from the EU. 40 professionals and academics from around the world and representing a number of different disciplines are meeting in Gellivare, Sweden to develop a comprehensive plan to move, redesign, redevelop, and repopulate a city.

2004-Present

Coordinator, Study Abroad Program to Halmstad University, Halmstad, Sweden. Building on relationships established on sabbatical in 1993, I initiated a series of visits between the Industrial Design program at the University of Kansas and the Product Design program at Halmstad University in Sweden. In May, 2004, an agreement was signed between the KU Office of Study Abroad and the Halmstad International Office, formalizing the relationship. Exchanges began in Summer, 2004, and further exchanges are planned for the 2004-2005 calendar.

2001

Stratford-upon-Avon, and London, England.

On sabbatical from January-August, my research involved weekly visits to London. I also took the opportunity to visit our exchange students at Staffordshire University in Stoke-on-Trent, and represented the department at the end of year shows in Coventry, Manchester, Preston, and Goldsmith College in London.

1999

Faculty Exchange to Staffordshire University in Stoke-on-Trent, England. I taught advanced level students in Industrial Design and participated as external mediator in final design reviews.

1994

I went to Milan, Italy to develop possible student/faculty exchanges and summer design courses. My interaction with the Director of the Design School at IED led to the creation of a summer introductory course that would provide insight into the influences and references that make the "Italian Style". A shortened version of this proposed course made up centerpiece of the summer course conducted by Professor Green (SS 95). The Summer Design Program continues today and has become an important educational enhancement for the design students at KU.

1993

Skillius Design, Halmstad, Sweden

I was primarily conducting sabbatical research in a professional design office. This study led to contacts at Halmstad University (see above), as well as contacts at Chalmers University in Goteborg, and at Konstfacksolan in Stockholm. Taught a seminar in computer design and animation at Konstfacksolan, the most prestigious design school in Sweden.

1991

Presented paper on Design Semantics at an international design conference in Helsinki, Finland.

1985- 1986

UNITEC Institute of Technology, Auckland, New Zealand

Course Supervisor, Design

I was challenged to rebuild the product design program at the largest school of Industrial Design in New Zealand. In addition to having full-time responsibilities as a faculty member, I was promoted to Course Supervisor in order to restructure the design course.

Working closely and collaboratively with other faculty, we rewrote the curriculum and established a design pedagogy that is still in place today. I met frequently with faculty members from all of the design schools in New Zealand, and several of the schools in Australia.

Courses Taught- The University of Kansas

Materials and Processes

Survey of materials, focusing on applications in Industrial Design.

Required course, Junior/ Senior/ Graduate level

Problems in Industrial Design, Advanced Problems in Industrial Design

Usually comprises the design staff of the Center for Design Research. Students from Junior to Graduate level work together as a professional design office on projects usually sponsored by industry. We have worked on projects from a range of sponsors, including Learjet, Compaq Computers, US Department of Agriculture, and Big Dog Motorcycles
Required course, Junior/ Senior/ Graduate level.

Graduate Industrial Design Studio

Individually structured course, working with Graduate students on thesis projects

Required course, Graduate level

Special Problems in Design

Individually structured course, working with design students on enhancement projects that fall outside the basic curriculum .

Elective course, Junior/ Senior/ Graduate level.

Directed Reading in Design

Individually structured course that exposes students to major writing and theory in Architecture and Design.

Elective course, Junior/ Senior/ Graduate level.

Visual Presentation

Advanced drawing technique course for Industrial and Interior Design students.

Required course, Junior/ Senior level.

In my tenure at The University of Kansas, I have taught all of the design studio courses we offer. Our studios are experimental, where students put all of the skills and theory they have learned in practice on a variety of product design projects.

Each project requires organization, research, conceptualization, development, technical documentation, and final product modeling and communication.

Industrial Design I

Industrial Design II

Industrial Design III

Industrial Design IV

Undergraduate Thesis

Internship

It is usually my responsibility to help students secure internships, and to keep track of their progress when they are in the field.

Partial Client List

Over the past 30 years, I have worked as a professional designer; working in corporate design studios, consulting offices, or as a freelance designer on a very broad range of projects. This includes the design of motorcycles, air circulators, aircraft interiors, micrographic readers, orthopedic traction systems, knives, space heaters, furniture, power tools, retail fixtures, electronic controls, playing cards, games, work environments, cranes, lawn and garden tractor, trade show exhibits, string trimmers, snowmobiles, VHS cassettes, medical products, audio amplifiers, industrial electrical control housings ,bags, back to school products, electrical substation enclosures, excavator cabs, bird houses and feeders, fence posts, tool cabinets, boat interiors, motor coach interiors, and plumbing fixtures.

Adams Aircraft, Mojave, CA Aircraft Interior Design
ADS, Huntsville, AL Corporate Identity Research and Design
Aladdin Industries, Nashville, TN Various Camping Products
Alberta Aerospace, Alberta, Canada Design Proposal, Aircraft Interior Design
Alfa-Laval, AB, Stockholm, Sweden Agricultural Product Design
Auburn University School of Pharmacy, Auburn, AL Consultation Booth
Auckland University School of Medicine, Auckland, NZ Asthma Inhaler
Baker Electronics, Miami, FL Aircraft Switches
Beauty Brands, Kansas City, MO Interior/ Fixture Design
Bell & Howell, Lincolnwood, IL Office Product Design
Bergström, Halmstad, Sweden Promotional Products Design
Birkenstock, USA, Novato, CA Store Fixture Design
Bolens, Port Washington, WI Lawn Tractor Design, Product Graphics
Bose Research, Boston, MA Store Fixture Design
Brian Russell Designs, Auckland, NZ Highchair Design
Briggs & Stratton, Milwaukee, WI Exhibit Design
Bruning International, Itasca, IL Office Product Design, Product Graphics
Bucyrus-Erie, Milwaukee, WI Heavy Equipment Design, Product Graphics
Bushnell, Lenexa, KS Night Vision Monocular Design
Cardinal Brands, St Louis, MO Office Organizers
J.I. Case Company, Racine, WI Heavy Equipment Design, Product Graphics
Chicagofest, Chicago, IL Graphic Design
Collins Communications Technologies, Milwaukee, WI Corporate Identity
Coleman, Wichita, Kansas, Product Design
Crabtree Music, Milwaukee, WI Graphic Design, Corporate Identity
Cramer, Inc, Kansas City, MO Product Design
Cutler-Hammer, Milwaukee, WI Exhibit Design
Drott Manufacturing, Wausau, WI Heavy Equipment Design, Product Graphics
Eagle Creek, San Diego, CA Store Fixture Design
Embraer, São Jose, Brazil Aircraft Interior Design
Excel/Hustler, Hesston, KS Lawnmower Design
Fairchild-Dornier, Oberpfaffenhofen, Germany Paintscheme, Product Graphics
Filer & Stowell, Milwaukee, WI Heavy Equipment Design, Product Graphics
Fischer & Paykel, Auckland, NZ Machine Design
Företagsutvecklarna, Växjö, Sweden Gas Candle Design
Galaxy Aerospace, Dallas, TX Aircraft Interior Design
Gametime, Inc., Fort Payne, AL Outdoor Furniture Design
Grahm Transmissions, Milwaukee, WI Product Graphics
Harley-Davidson, Milwaukee, WI Transportation Design, Model Building
Hawker/Beechcraft, Wichita, KS Aircraft Interior Design
Huhtamaki, Desoto, KS Product Design
Helio, Bristol, TN Aircraft Interior Design Proposal
ICOR, AB, Stockholm, Sweden Medical Product Design
IKEA, Stockholm, Sweden Clothes Hanger Design, Recycling Bin Design
Jockey International, Kenosha, WI Exhibit Design, Store Fixture Design
Kohler, Kohler, WI Exhibit Design
Larson/Glastron, Little Falls, MN Leisure Boat Design
Learjet, Wichita, KS Aviation Design
Leon Paul, London, England Fencing Mask, Scoring Box Design
Marathon Electric, Wausau, WI Store Fixture Design
Martin Industries, Florence, AL Electric Space Heater Design
Matthews Heater Co., Albertville, AL Electric Space Heater Design
Micro Design, Hartford, WI Product Design, Corporate Identity, Strategic Planning

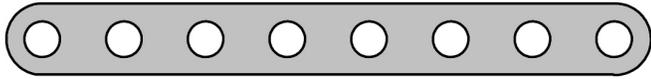
Micron, Iron Ridge, WI Product Design, Corporate Identity, Strategic Planning
Minder Systems, Auckland, NZ Electronic Control Design
New Deal, Leawood, Ks Product Design, Corporate Identity, Strategic Planning
Newell Motorcoach, Miami, OK Motorcoach Design, Product Planning
Pantone, New York, NY Bags, CD Cases, Journals, Organizers, Notebooks
Perm-a-Store, Wichita, KS Product Design- Protective Cases
Polaris, Roseau, MN Snowmobile Design, Product Graphics
Poulan, Shreveport, LA String Trimmer Design, Lawnmower Design
Raaco, Copenhagen, Denmark Plastic Toolbox Design
Ranger Boats, Flippin, AR Boat Design
Raetheon, Wichita, KS Aircraft Interior Design
Raetheon, Wichita, KS Aircraft Interior Design
Rubbermaid, Huntersville, North Carolina, Product Design
Singapore Airlines, Singapore Corporate Aircraft Interior Design
Snorkel, Kansas City, MO Paintscheme, Product Graphics
Spectrum, San Diego, CA Aircraft Interior Design
Sutherland Engineering, Lawrence, KS Audio Amplifier Design
S.O.R. Inc., Olathe, KS Pressure Switch Design, Workstation Design Planning
The North Face, Oakland, CA Store Fixture Design
Trek Bicycles, Baraboo, WI Product Graphics
Triad, St. Louis, MO Store Fixture Design
Walker Manufacturing, Racine, WI Exhibit Design
Wal-Mart, Bentonville, AR Point-of-Sale Design, Interior Design
Weed Eater, Houston, TX String Trimmer Design, Lawnmower Design
Western Publishing, Racine, WI Exhibit Design
Xikar, Kansas City, MO Product Design, Strategic Product Design

Professional Honors

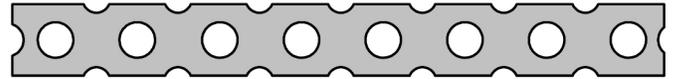
2009, Popular Mechanics Magazine named the Hustler Zeon Mower one of “the Ten Most Brilliant Products of 2009”.

2004, ID Magazine “Design 50”. The editors at ID chose to profile the work of 50 US designers in their January/February 2004 Issue- one from each state. I was honored as the designer chosen to represent Kansas.

2001, won the Grand Prize for Focused Fixture Design in the 2001 NASFM Retail Design Awards for my work with Infusion Design.



Disclosed Embodiment
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



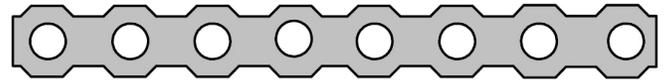
Alternate Embodiment 5
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



Alternate Embodiment 1
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



Alternate Embodiment 6
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



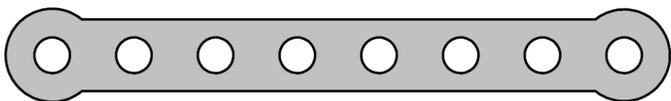
Alternate Embodiment 7
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



Alternate Embodiment 2
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



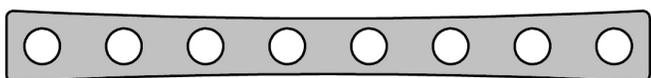
Alternate Embodiment 8
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



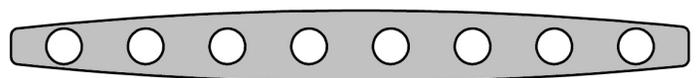
Alternate Embodiment 3
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



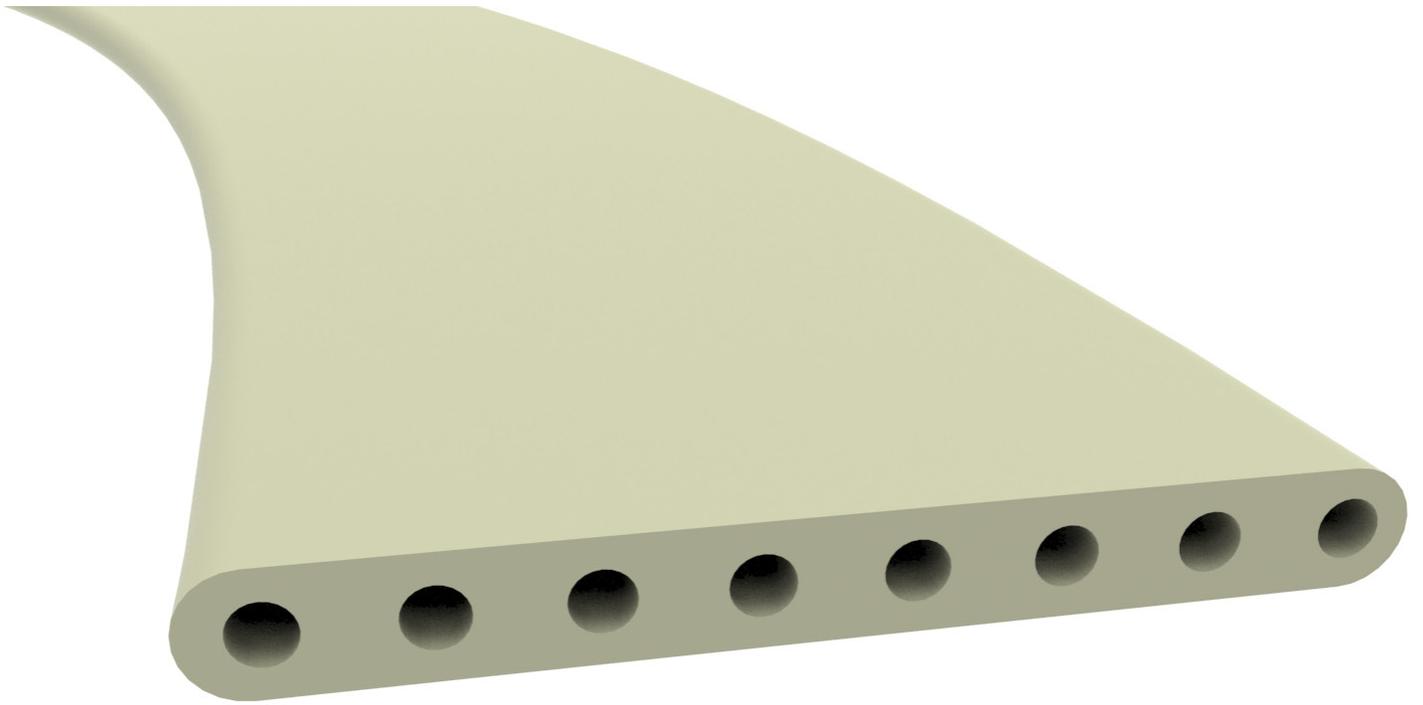
Alternate Embodiment 9
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



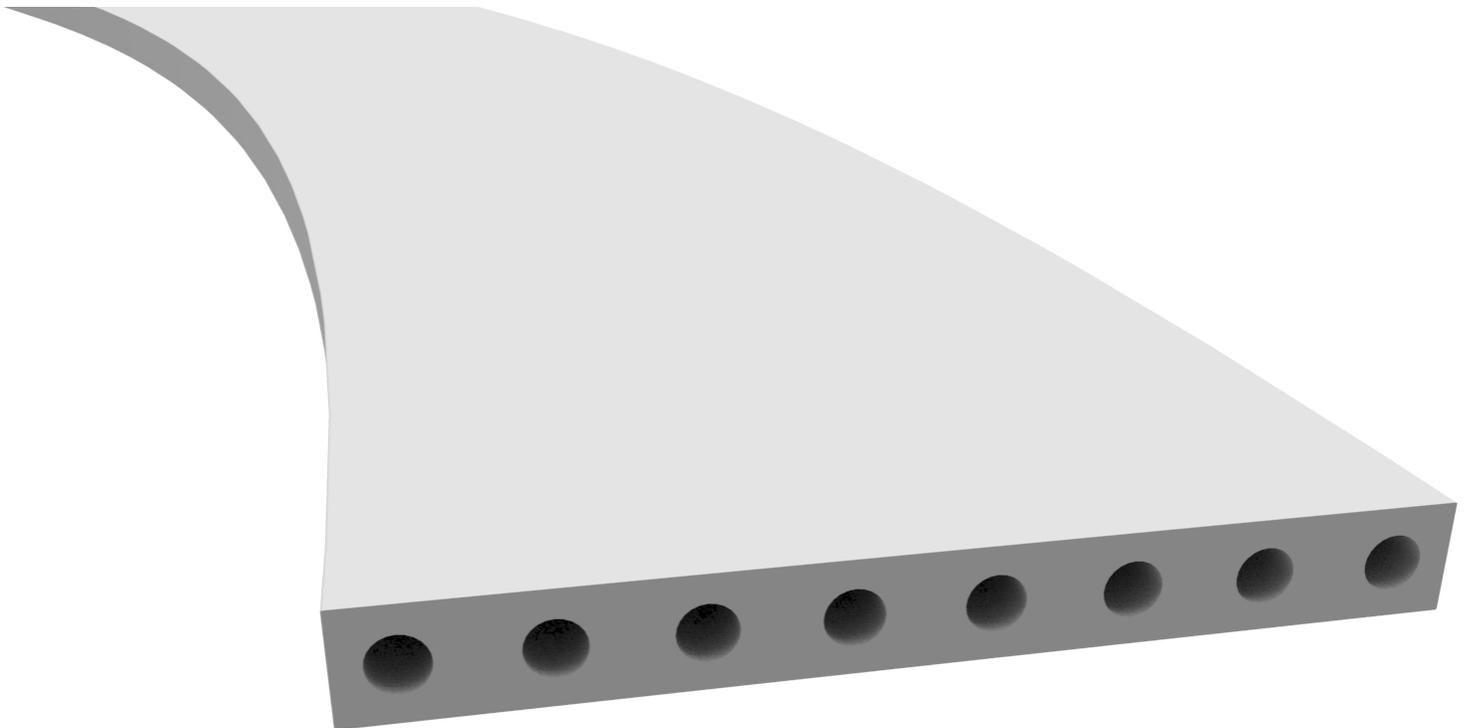
Alternate Embodiment 10
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



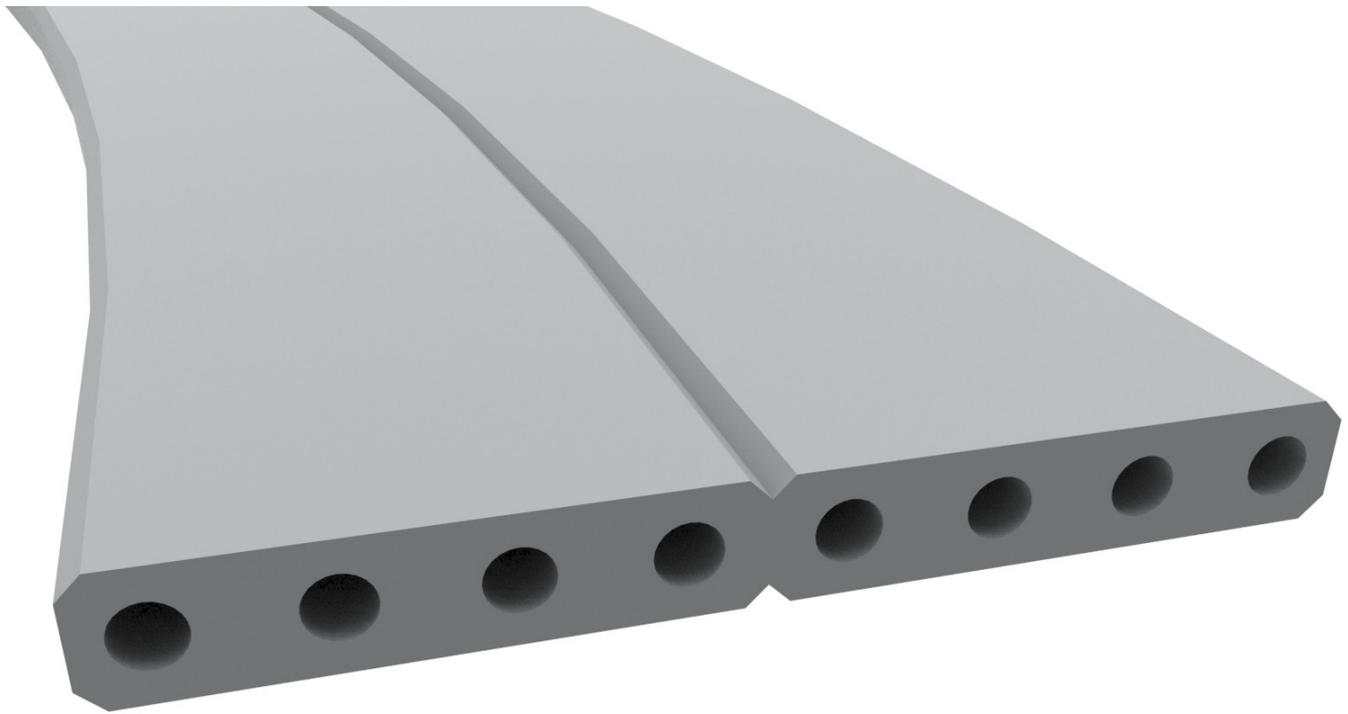
Alternate Embodiment 4
Approx 8 units wide X 1 unit thick
Side-By-Side Conductors



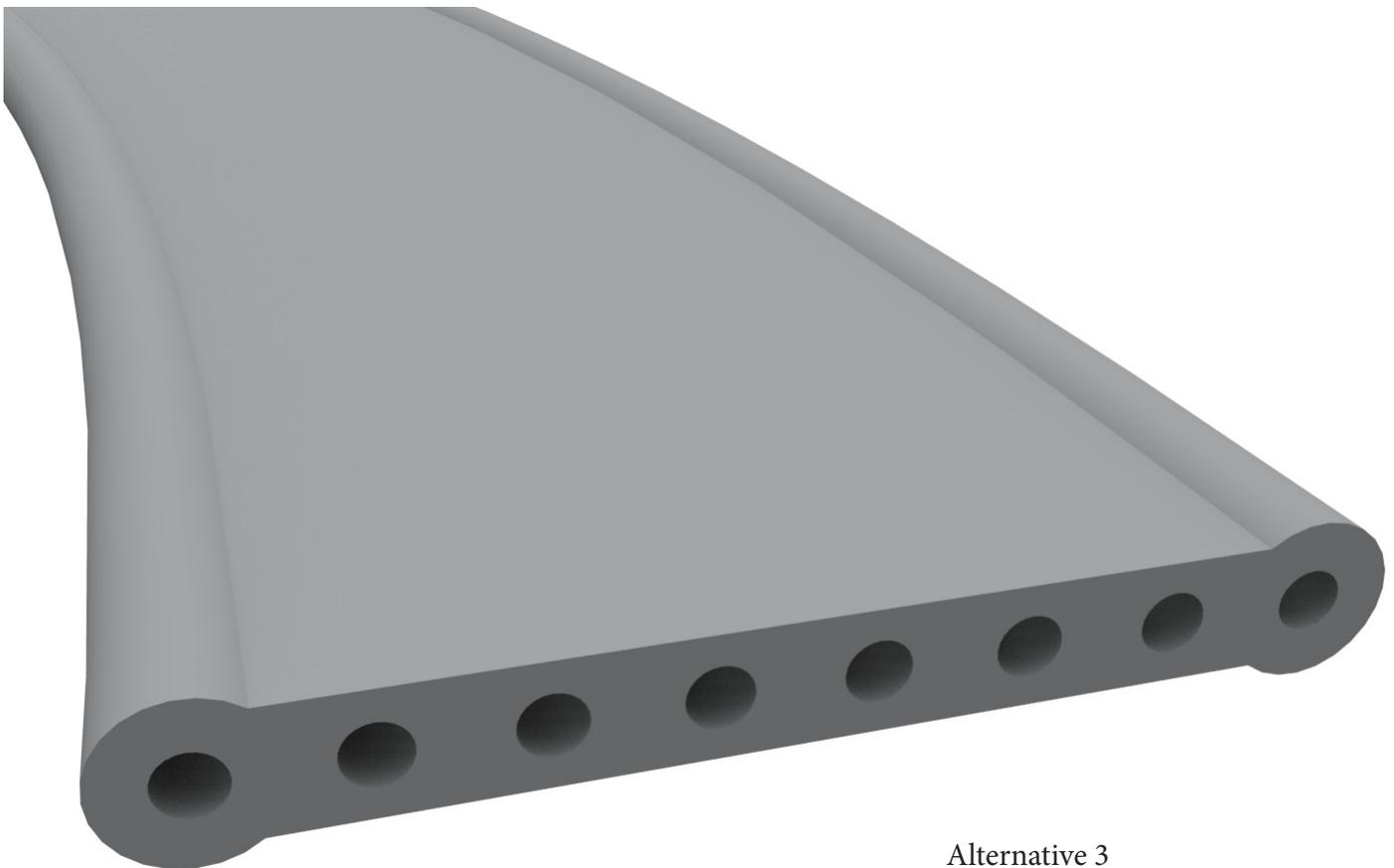
Disclosed Embodiment



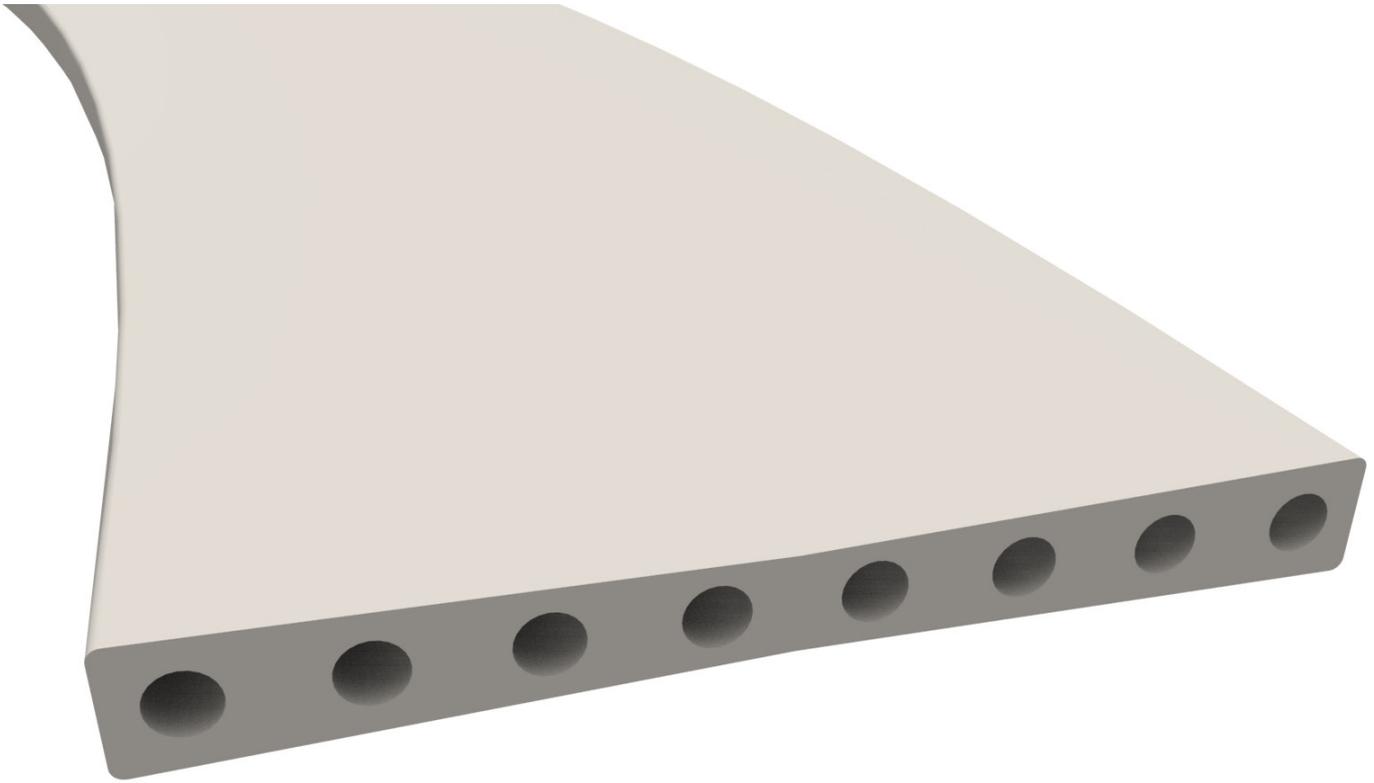
Alternative 1



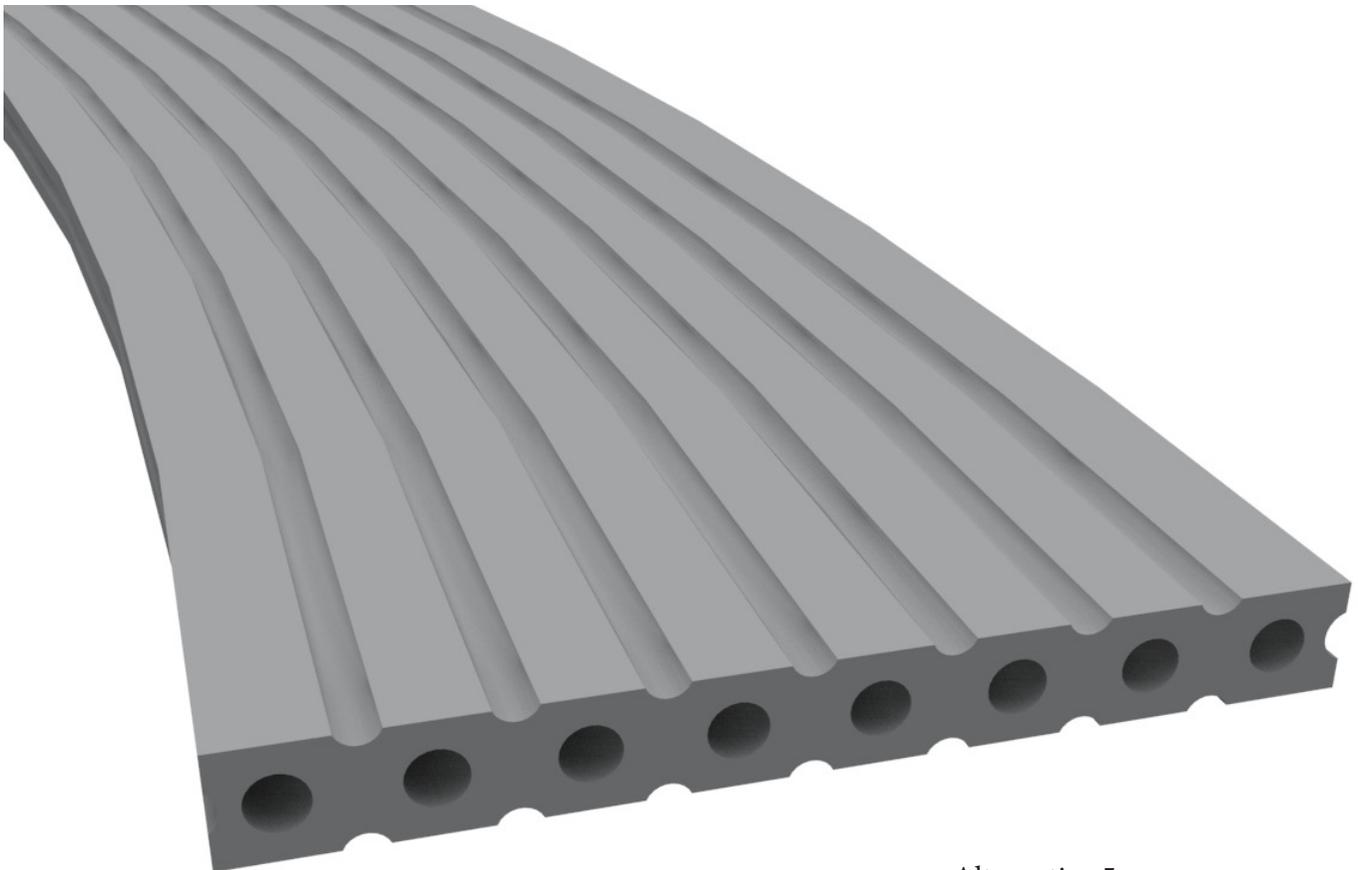
Alternative 2



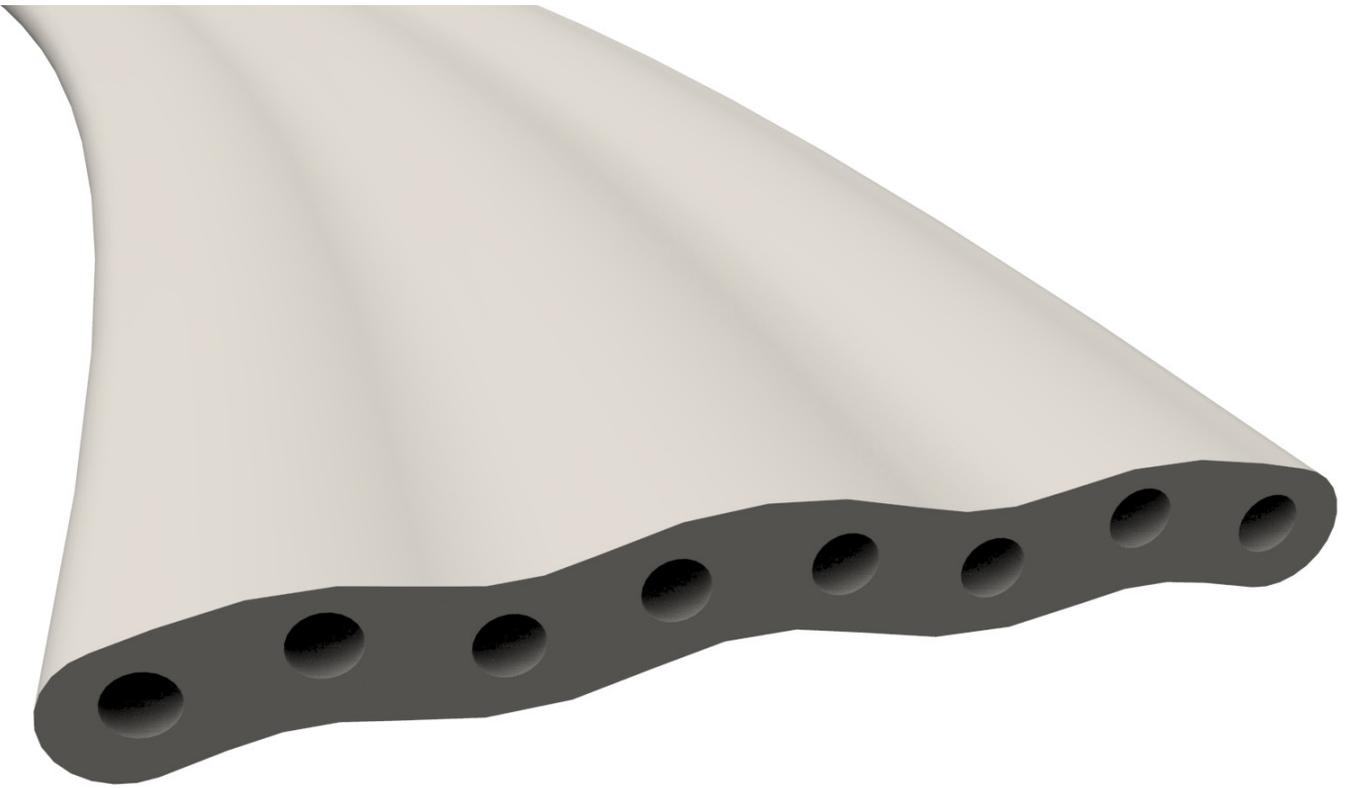
Alternative 3



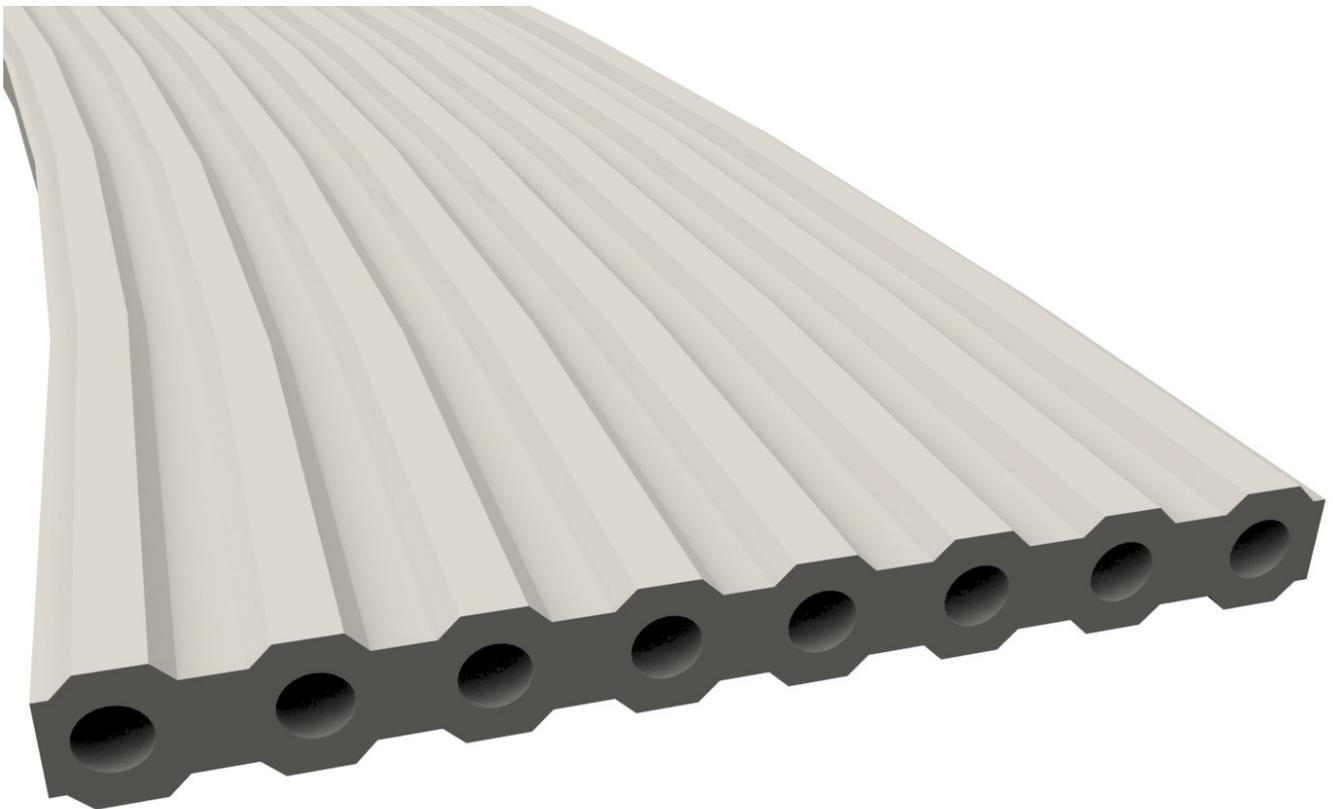
Alternative 4



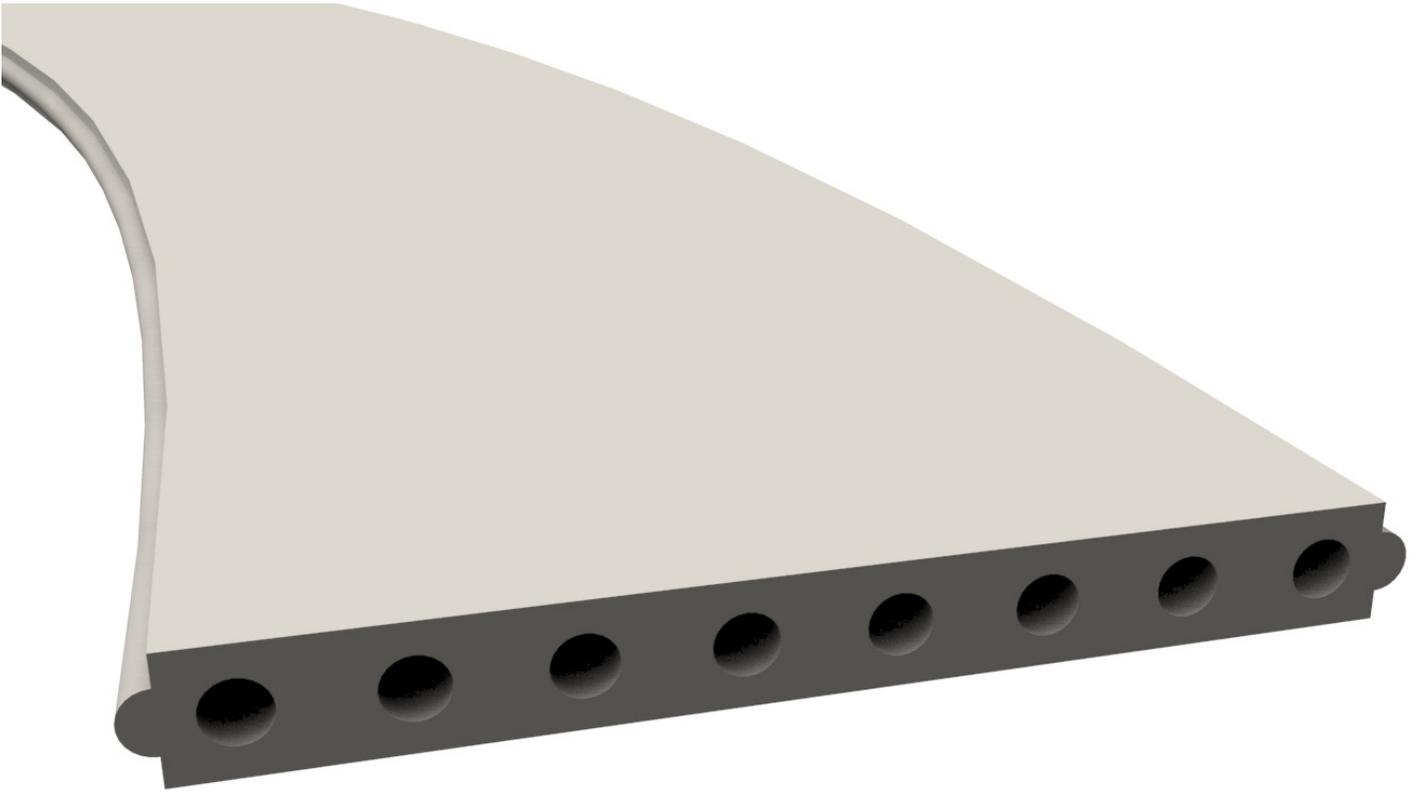
Alternative 5



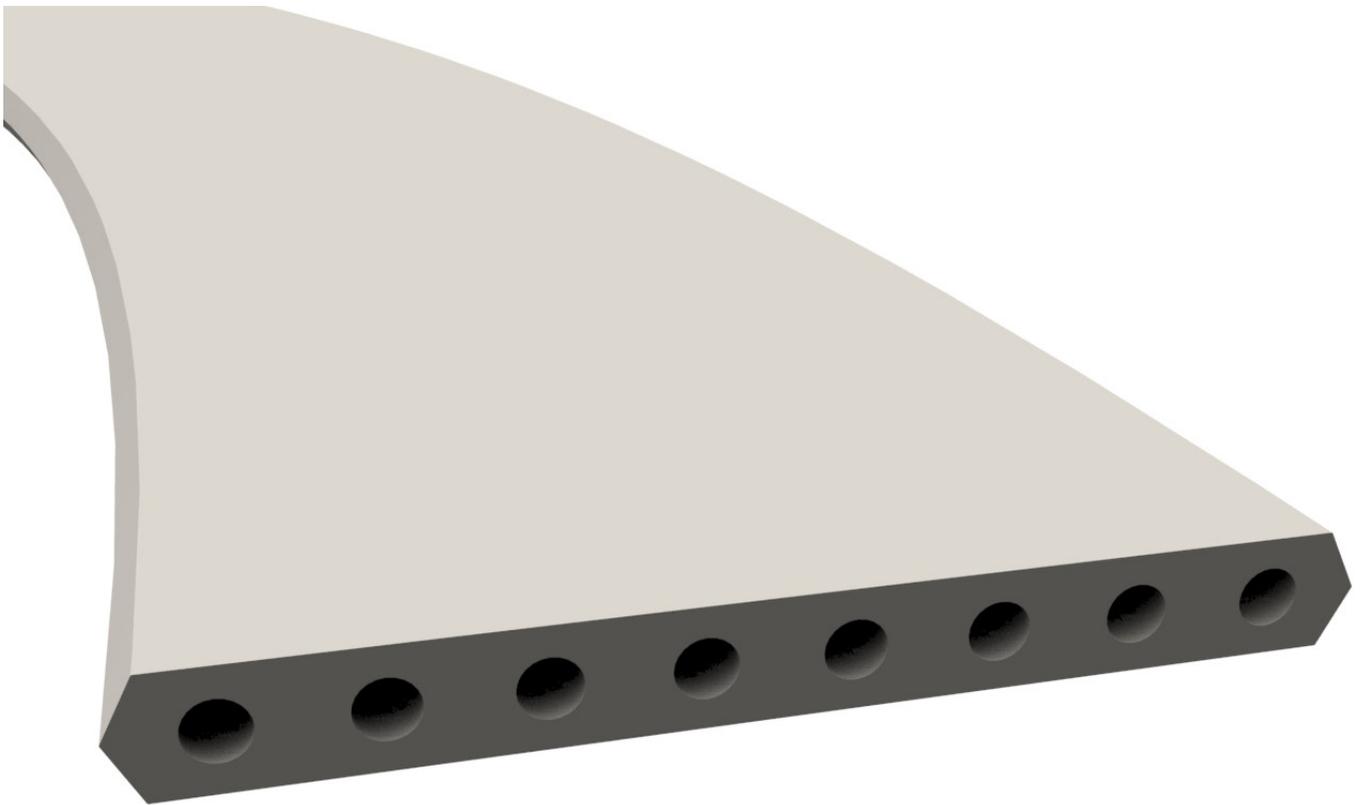
Alternative 6



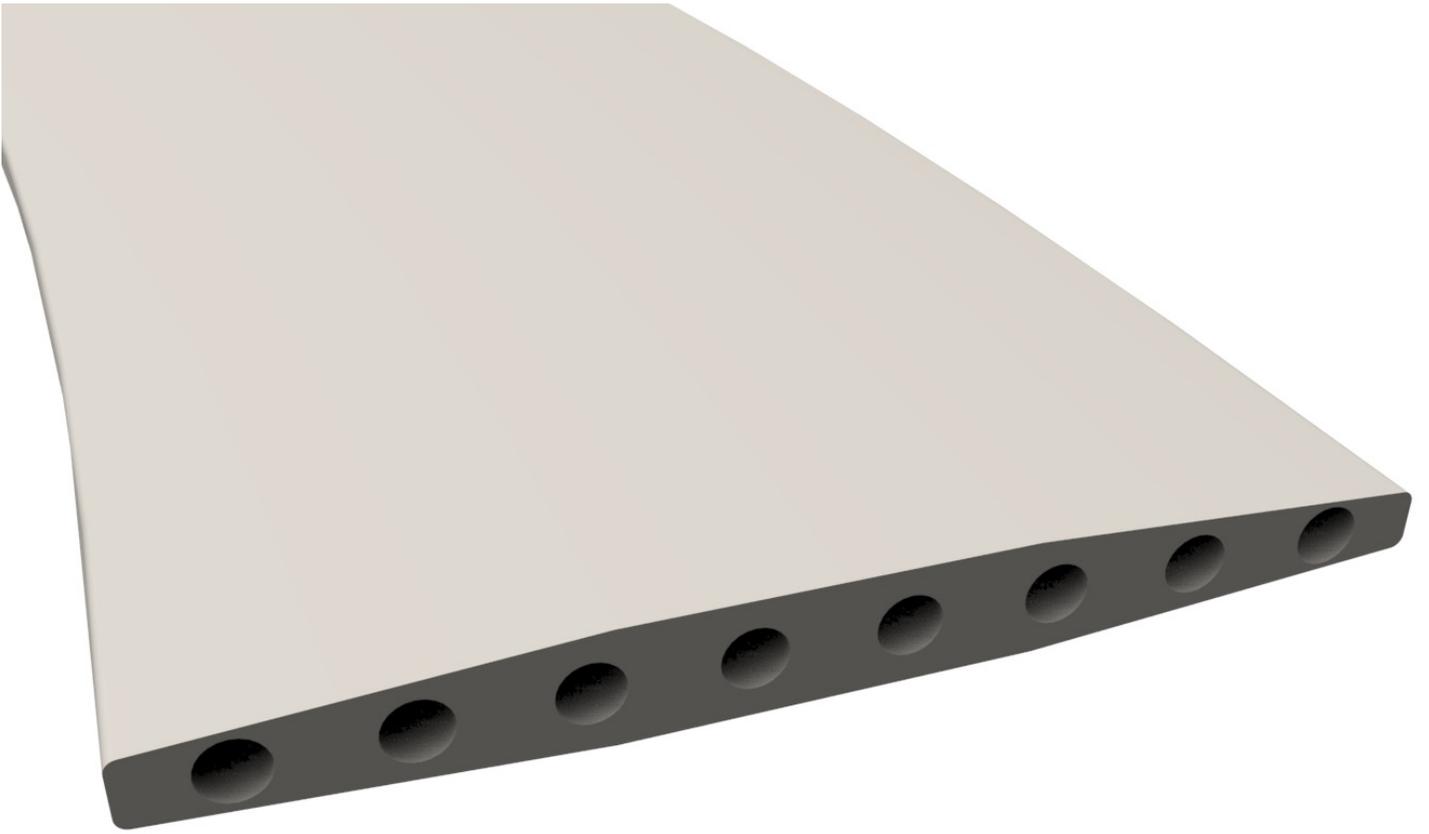
Alternative 7



Alternative 8



Alternative 9



Alternative 10