



ANTEC® 2024  
St. Louis, MO • March 4-7

2024

Featuring a Symposium Honoring  
the Career Achievements of

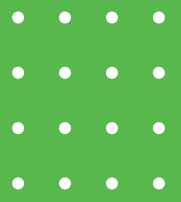
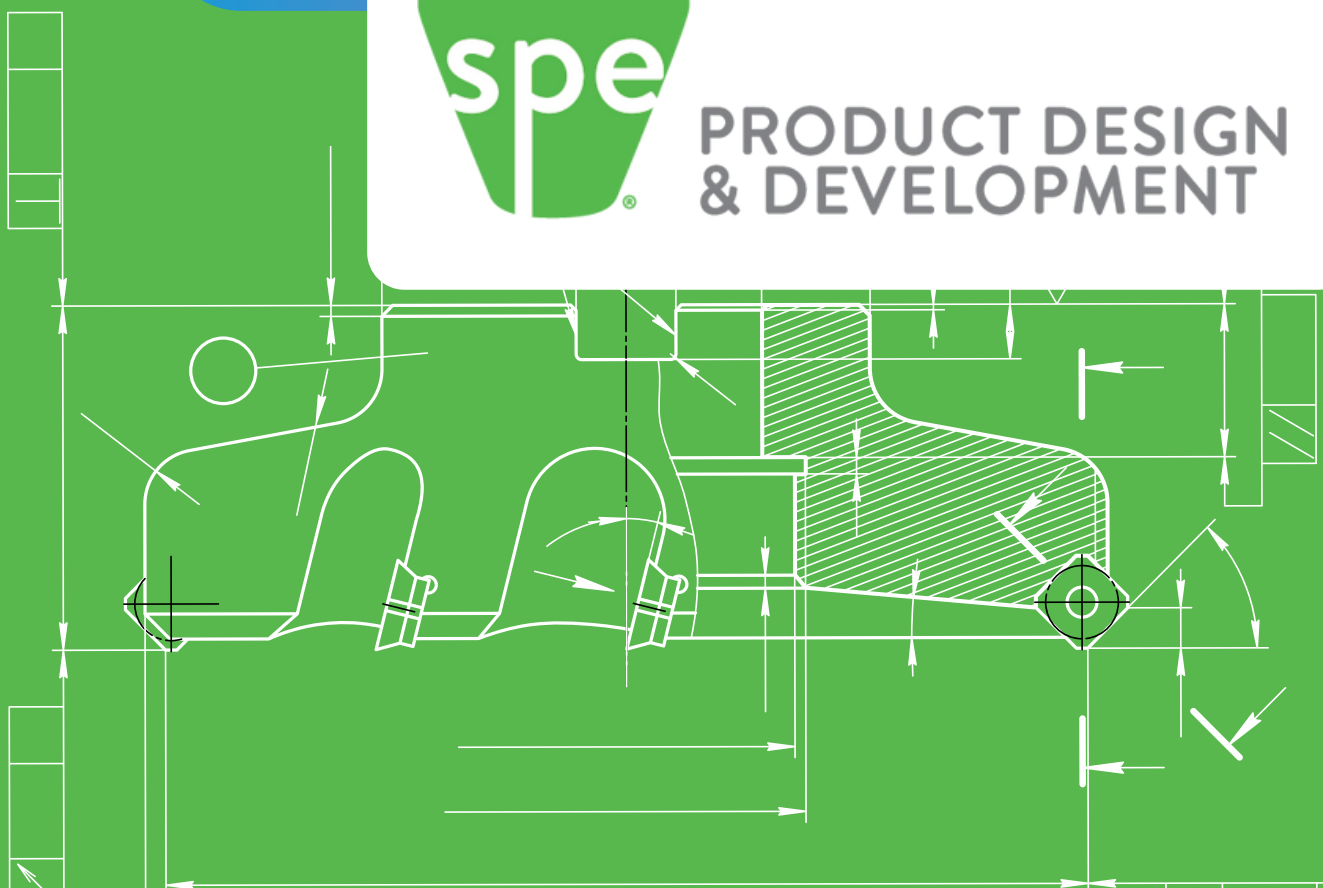
# Winter Newsletter

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# Letter from the Chair

By: Eric Foltz



Hello Product Design and Development Division (PD3) Members!

I hope everyone had an enjoyable holiday season and you were able to spend time with family and friends to close out 2023! This time of year is often associated with slowing down, reflecting on the past year and setting goals for the coming year. As I reflect on the past year leading the PD3 Board of Directors, I'm very excited about the group we have guiding the Division. The Board consists of veteran, foundational members that bring us a wealth of design and plastic knowledge and perspective to keep us moving forward and relevant to the design community. Additionally, we have added key members that allow us to better communicate with all our membership and help push us into new territories that we have not given as much attention to in the past. As we kick off 2024, I'd like to highlight what we have accomplished in 2023, and what we have planned for you in the coming year.

As I stated in my previous newsletter message, we undertook three large initiatives in 2023. We implemented a new website, <https://pd3.4spe.org/>. The goal of the website is to be a hub that allows us to post relevant design news and guides that will help designers better integrate plastic components into their assemblies and ensure the parts are manufacturable prior to heading to their manufacturing partners. Having a central location for these design guides allows our website to be an anchor for the design community and ensure they are getting the correct base knowledge at the early stages of their design process. **Our second initiative was to implement a bi-monthly webinar series titled "Design for...." This is a more dynamic interaction, where we are allowing for regular discourse in the design community on the key factors product and plastic part designers encounter during their product and part design process. We have been blessed by having two great webinars led by two very experienced designers and plastics engineers. Vik Bhargava helped highlight how we can better identify the root cause of our plastic part performance or manufacturing issues. Michael Paloian gave a great presentation on how to better select your manufacturing method to economically produce your part, and how that process selection will dictate which features can be integrated into your part design to obtain the original design intent of your product. This webinar series is open to everyone in the design community, whether you are a PD3 member or not.** Finally, our last initiative was to regularly put out a newsletter. This is our attempt to keep our membership engaged and aware of both SPE and non-SPE events that are relevant to the design community. While the first two initiatives are a great way to engage the already engaged members, we understand everyone is pulled in many directions. The newsletter allows us to regularly reengage those members that may have been pulled away due to other commitments and allows us to distribute educational material and promote upcoming events. (cont'd on next page)

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# Letter from the Chair

As you will see in this newsletter, we have a great technical article about how to better integrate **sustainability** initiatives into your plastic part design. We also have information about our upcoming events in 2024 with the hope that you can participate in them. The newsletters also provide quick references that help move your design knowledge forward and understand what networking events are coming up.

While 2023 has been exciting, the PD3 Board will not be slowing down in 2024. We already have our first three “Design for...” webinars planned for 2024. The topics align well with many individuals’ common New Year’s resolutions. In January, we will have a weight-loss topic in which we will discuss “Success When Undertaking Metal to Plastic Conversion Projects”. In March, we will have a technical economics discussion about how to effectively scale up your plastic part design for mass production, and how your decisions about design features and secondary processes will affect your end part cost. Finally, in May or June, we will have a sustainability topic, in which we have an expert discuss how you can more effectively integrate an end-of-life strategy and what should be considered when mechanical recycling is included in that strategy. In addition to the virtual events, we will also be co-hosting an exciting in-person event at ANTEC® 2024! **At this in-person Symposium, on March 6th, we will be honoring industry titan and PD3 Board member Glenn Beall. This once-in-a-lifetime event will feature a keynote address from Glenn, along with 10 speakers who are, themselves, highly regarded within the plastic design community. Personally chosen by Glenn, they will address elements of Glenn’s 4 Pillars of Plastic Product Design—Material, Design, Mold and Process—as well as fundamentals of Rotational Molding, Thermoforming and Additive Manufacturing. Their presentations will include well-practiced technical content interspersed with personal memories and comments on their relationship with Glenn. After the Symposium concludes, there will be a networking event where you can mingle with others that have a similar passion for plastic part design and manufacturing. This will be THE EVENT for plastic part and product design professionals in 2024! You can register here: [Registration Information | SPE \(4spe.org\)](#)**

Finally, I’ll wrap up my message by asking you, our membership, for your ideas and interests. As I’ve stated previously, we have a strong Board, but we are always looking to add new energetic members who are interested in taking on an active role. If you are interested in volunteering your time and energy in supporting us as a Board, we would welcome you at any of our Zoom Board meetings. If you are interested in volunteering content for a webinar or newsletter, we will gladly review that and look to see how it can best be integrated it into our communication strategy. Alternatively, if you are a corporate or individual that is looking to support the division financially, please reach out to us or ensure you sign up as a PD3 member. As an individual PD3 member or a corporate sponsor you help fund our in-person educational and networking events! Whatever way you choose to contribute, we thank you for supporting us! Have a great 2024, and we hope to “see” you soon!

Erik Foltz  
Chair, PD3 Board of Directors

# Letter from the Editors



As the editors of your esteemed newsletter, it brings us great pleasure to welcome you to the Winter 2024 edition. In the realm of plastic product design and development, this season has witnessed a confluence of ideas and innovations that have formed the landscape of our industry.

Our committee continues to thrive on the collective expertise and creativity of its members, and we will continue to share that knowledge via this PD3 newsletter. In this issue, we explore two topics that are a vital part of our industry: Incorporating sustainability concerns in plastic part and product design, and material property considerations for converting metal parts to plastic.

As we navigate the ever-changing currents of our field, it is essential to celebrate the achievements of our community and those individuals who have paved the way for plastic part and product designers and engineers. And, no one is more deserving of such celebration than Glenn Beall. We hope you can join us on March 6th at the Glenn Beall Symposium, where Glenn will be honored by his fellow SPE members as they deliver high-quality technical presentations on numerous plastic part design fundamentals, and offer some personal thoughts on how Glenn has influenced our industry for almost 70 years.

Thank you for being a part of our community! We hope you find inspiration and helpful insights within the pages of this newsletter. Please let us know if there's a topic you'd like us to explore, or if you have something to share with our community.

Warm Regards and Best Wishes for a Happy, Healthy and Prosperous 2024,

Elizabeth Detampel  
Al McGovern



# Past BOD Minutes

Meeting Minutes | December 13, 2023 | PD3 Board Zoom Call

## Call to Order and Roll Call

- Meeting started at 1:03 pm Eastern Time
- Present: Erik Foltz, Al McGovern, Larry Schneider, Jason Suess, Akanksha Garg, Elizabeth Detampel, Chris Siler, Eric Rose, Mark MacLean-Blevins, Vik Bhargava, Mark Wolverton
- Excused Absence: Glenn Beall, Ed Probst
- Absent: Pavan Valavala, Kyle Kulwicki, Michael Paloiane
- Invited Guests: None

## Past Meeting Minutes

- Previous meeting minutes were distributed prior to meeting
- Minutes were approved as distributed with motion from Mark Wolverton and a second by Larry Schneider

## Treasurer Report

- Provided by Larry Schneider

## Councilor Report

- No report since there have been no Council meetings since the last PD3 board meeting

## Website/Newsletter Report

- There should be e-mails being distributed when new content is loaded to the PD3 website
- A newsletter is in progress and should be distributed in January 2024

## Membership Report

- Mark M-B will send out a detailed membership report

## Old Business

- ANTEC 2024
  - Akanksha shared a tentative session agenda for ANTEC that she will distribute to the board
  - Akanksha recommended that the Failure Analysis and Prevention session will best align with PD3
  - PD3 will host Glenn Beall Symposium that will be on Wednesday, March 6th for a full day
  - There will be a social event at the end of the symposium
  - A number of speakers have been selected by Glenn and Akanksha is coordinating the presentations

## New Business

- Meeting recording will be made available to board members for up to 30 days to be review if they cannot attend the meeting
  - Approved with motion from Larry Schneider and a second by Eric Rose  
(Cont'd on next page)

# Past BOD Minutes

Meeting Minutes | December 13, 2023 | PD3 Board Zoom Call

- Budget Planning
  - A question was raised about covering the travel expense for the Councilor since it is unclear what value the Council Committee of the Whole brings to our division
  - Vik will take action to discuss the benefits of the council to the divisions at the next counselors meeting
  - The decision was made to postpone the approval of a final budget until the next meeting. Motion was made by Mark Wolverton, and a second was provided by Al McGovern
- Giving Guidelines
  - Ran out of meeting time for discussion. This topic will be put on the agenda for the next meeting
- SPE Instructors
  - Akanksha shares that SPE is looking for professional instructors for various technical fields
  - Akanksha will send out the formal request from SPE with additional information

## Adjourn

- Meeting ended at 2:15 pm Eastern Time

Submitted by Chris Siler



ANTEC® 2024, taking place in St. Louis from March 4–7\* at the Marriott St. Louis Grand, will showcase the latest advances in industrial, laboratory, academic, and international work focused on plastics and polymer science.

### Honoring Glenn Beall

We are excited to announce that on Wednesday, March 6th, the [ANTEC@ program](#) will include a **Symposium Honoring the Career Achievements of Mr. Glenn Beall**. Glenn, who joined SPE in 1960, has served in many roles during his career in plastics: engineer, inventor, consultant, educator, editor, author, and industry activist. Glenn has stamped an indelible legacy on the growth of plastics and of SPE.



During the symposium, Glenn will give a keynote presentation and symposium sessions will include speakers focused on various areas of Glenn's expertise such as rotational molding, injection molding, design, additive manufacturing, thermoforming, and more. There will also be a networking event following the symposium. This will be a great opportunity to honor one of our leading plastics innovators! You don't want to miss it!

## Gain All-Access!

Visit the Link to Register!

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# Designing Successful Products with Plastics with Sustainability as a Design Consideration

*By: Mark MacLean-Blevins*

For most every plastic product or part design project, the design engineer will begin with a set of requirements for the product or part and will proceed to create the initial design solution concepts using a few well-known considerations. These considerations are often referred to as the “**Four Pillars**” of plastic part design [1] and include: the **material(s)** to be used; the **process(es)** to be used to fabricate the part(s); the **tooling** required for the process(es) selected, and; the detailed **part design(s)**. Any plastic product or part designed with these four considerations applied throughout the design process will typically perform and function as expected and should be easily manufacturable. Missing from these four primary considerations, although sometimes implied, is a regard for **sustainability**.

Designers and engineers practicing in the art of plastic part or product development will generally be versed in the concept of energy efficiency. In fact, one of the driving forces in the selection and use of plastics as a material choice for many products and parts is the overwhelming energy efficiency that can be achieved, resulting in lower costs. As designers, if we can save one single gram of material in a part, then that is one less gram that needs to be produced as a raw material, one less gram that needs to be transported from the raw material manufacturer through distribution to the processor, one less gram that needs to be heated for processing, one less gram that needs to be cooled during processing, one less gram that needs to be transported from processing to final assembly and packaging, one less gram that needs to be transported from final pack out through distribution to the retail shelf or to the final destination, and one less gram to be reclaimed at end-of-life for the part or product. Energy savings are realized at every step for each single gram we can remove during the concept and design stage of development, resulting in less fossil fuel use, less greenhouse gas emissions, and a lower overall carbon footprint. As important as these energy savings are, they do not make the part or product truly sustainable. Hence there must also be a desire to include sustainability in the primary considerations utilized by the design engineer when creating concepts or solutions for any new product or part to be manufactured utilizing plastics materials.

Sustainability is a broad term and can possess different meanings in different settings, hence, let's first frame a definition of sustainability that we intend to consider during our design and development process. The root word “sustainable” is defined by Merriam-Webster as “of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged.” [2] It follows that sustainability is, therefore, the ability to be sustainable, or to remain sustainable. For our creative design thinking, during considerations for a new or revised concept for some part or product, the ability to be sustainable creates considerations in two directions, that is, upstream and downstream.

# Designing Successful Products with Plastics with Sustainability as a Design Consideration

Upstream considerations include the resources available that will be required to produce the part or product being conceived, such as raw materials for the product, raw materials for the tooling, energy used for the processing, tool construction, transportation, etc. Downstream considerations include the use and lifespan of the actual product itself, including transportation through the distribution channel to the market, useful lifespan by the user, energy required for use by the user, disposal or reclamation means, etc.

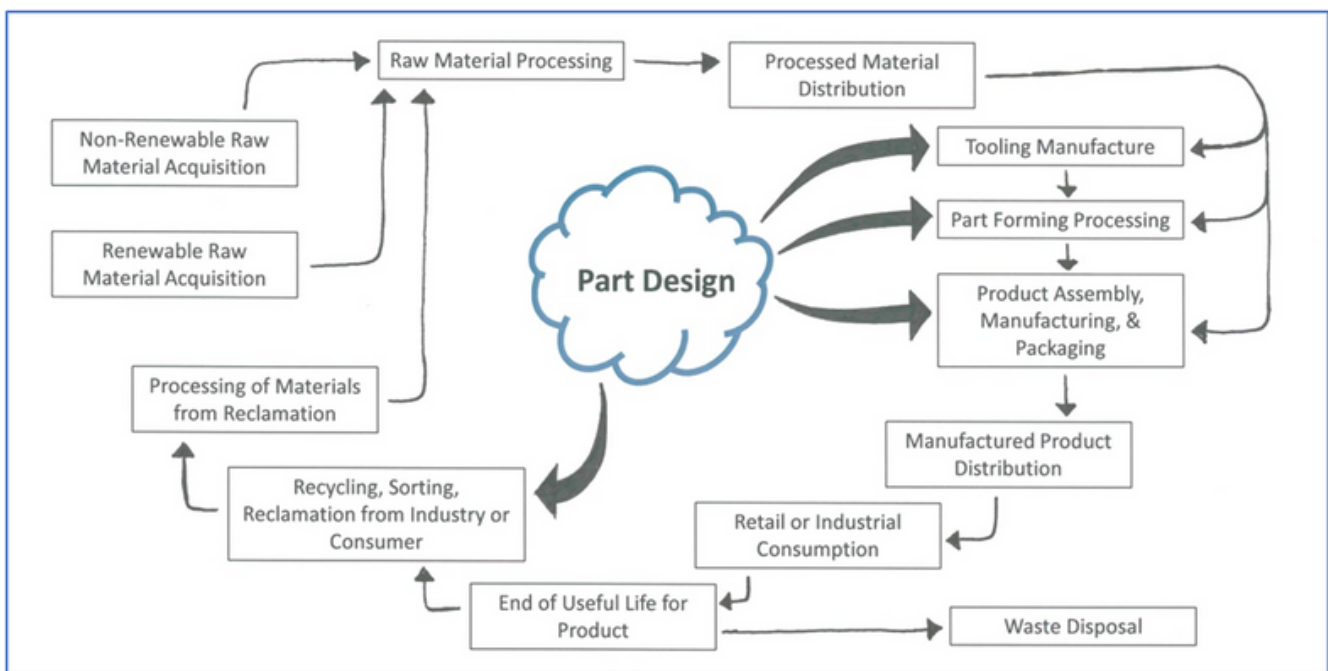


Figure 1: A high-level representation of the life cycle for a manufactured part or product, illustrating the upstream and downstream stages where design choices can impact the sustainability result for the part or product being developed. Image courtesy of and copyright by M-B&A, Inc., 2021

Exactly how does the design engineer begin to include sustainability in these primary considerations? What specific requirements or metrics are used for this sustainability consideration? When can the sustainability characteristics be evaluated and validated during the development process? These are not easy questions to resolve as every development project has different functional and environmental situations which determine the complexity of the sustainability component to be considered.



# Designing Successful Products with Plastics with Sustainability as a Design Consideration

However, there should be some broad-spectrum characteristics, and some means of comparative analysis for the design engineer to use during development, much like the considerations for materials, processes, and tooling. Our goal in this article is to explore just how the design engineer can implement a consideration for sustainability throughout the design process, from concept development through to final detailed design ready for implementation and manufacture.

To learn more and read the entire article on *Designing Successful Products with Plastics with Sustainability as a Design Consideration* please follow this link: <https://pd3.4spe.org/wp-content/uploads/2023/12/Sustainability-as-a-Primary-Design-Consideration-Full-Article.pdf>

## References:

1. M.T. MacLean-Blevins, *Designing Successful Products with Plastics - Fundamentals of Plastic Part Design*, first ed., Elsevier, Oxford, 2018
2. Sustainable.” Merriam-Webster.com Dictionary, Merriam-Webster, <https://www.merriam-webster.com/dictionary/sustainable>. Accessed 29 Aug. 2021.



*About the Author:* Mark MacLean-Blevins, founder of M-B&A, is an independent product design consultant in practice since 1993 with fifty-five patents issued for innovations developed as a result of his creative work. He is the author of *Designing Successful Products with Plastics*, now in its second edition. Mark and Kim MacLean-Blevins, parents of eight children, live and work in Westminster, Maryland.

Visit [www.maclea-blevins.com](http://www.maclea-blevins.com) to learn more.

# Design For.. Webinar Series



## Success When Undertaking Metal to Plastic Conversion Projects

with: [Erik Foltz](#)

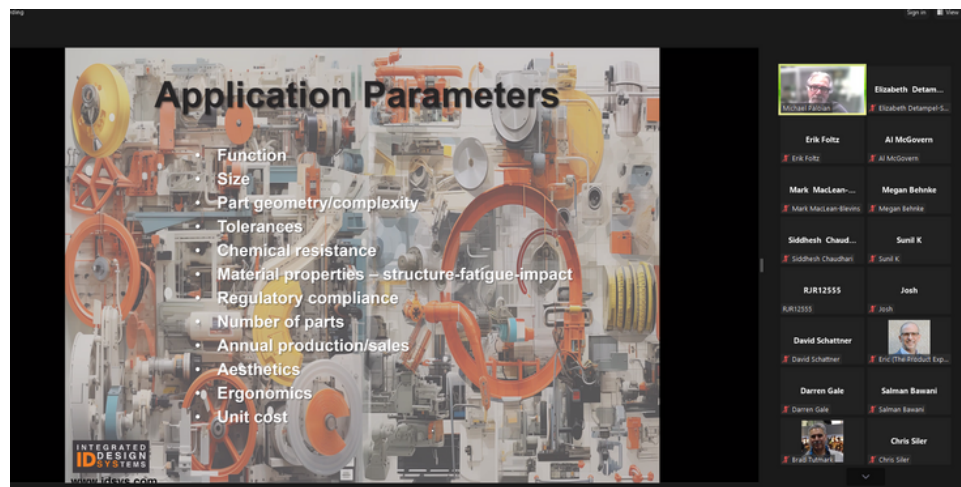
January 24, 2024 @ 12 CST

Plastics and composites offer designers a unique opportunity to reduce part cost while improving part and assembly quality. However, when undertaking a project that is looking to convert a part or assembly from more traditional materials to these polymeric based materials extra attention needs to be given to the performance requirements of the end assembly, and how material selection and manufacturing may influence the overall part quality of the final molded product. This talk will highlight what properties of these composites and plastics need to be evaluated to make the conversion a success. Additionally, the speaker will highlight how simulation tools like structural FEA and Moldflow® can be proactively utilized to help minimize failure modes or late design changes that will derail your project.

[Erik Foltz](#) is a Senior Managing Engineer at [The Madison Group](#). For over 15 years, Erik has worked with his customers, across all industries, to successfully design and manufacture plastic components through all phases of the product design process. His specialties include plastic part design verification, process optimization and troubleshooting for injection and compression molding, and plastics failure root cause analysis. He has experience with thermoplastic, thermoset, elastomeric, and composite materials. Erik is also a Certified Professional Moldflow® Consultant.

**Register Here**

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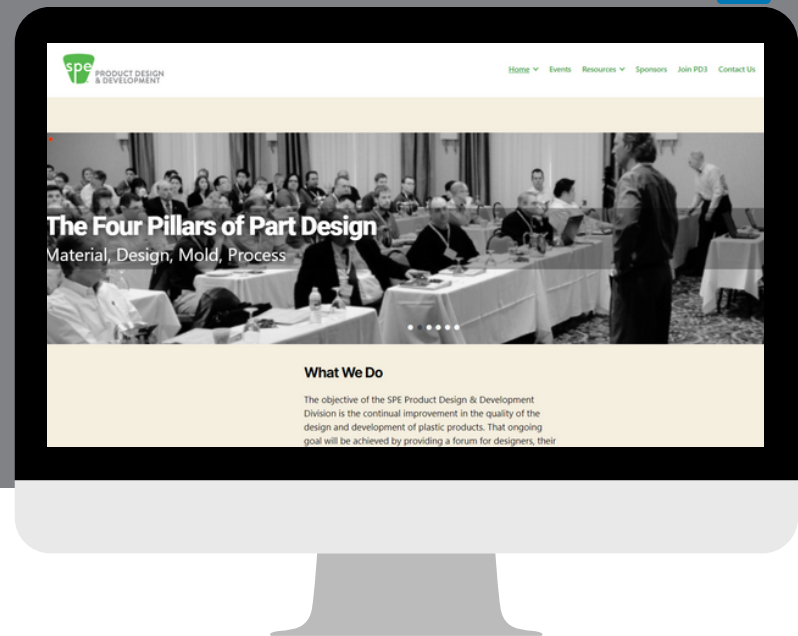
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