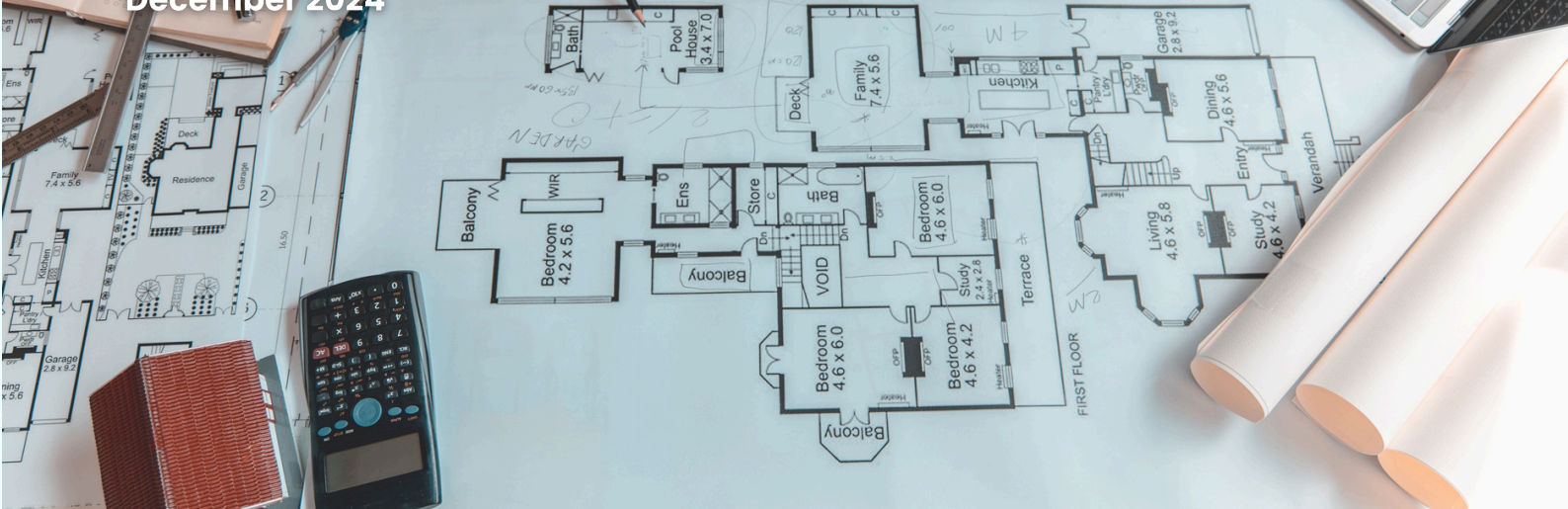


ASSEMBLY REQUIRED

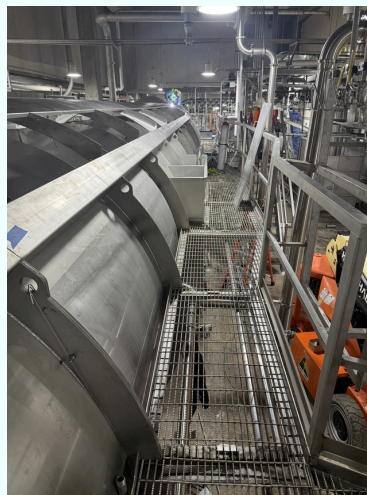
December 2024



THE WATER COOLER

From all of us at PEPM Group, we would like to wish you and your family a happy holidays. We look forward to working together in the new year and for many years to come. We want to thank each and every one of you who voted for us for the Best Engineering Firm in Northwest Arkansas. The results will be announced on March 23rd!

PEPM Group successfully completed the engineering design package and on-site construction administration support for the structural, mechanical, refrigeration, and electrical engineering design of a poultry processing project in Texas, on time and within budget. The engineering team provided technical guidance and support for the startup during and after Thanksgiving. Thank you, the structural and mechanical engineering team, for the remarkable customer service!



The PEPM Group is starting the phase I engineering and modeling for the fractionation facilities in Saudi this month. PEPM will provide structural, mechanical, electrical and instrumentation engineering, and 3D modeling in CadWorx and Smart Plant 3D as well as detail drawings and isometrics. The project is expected to be completed by the end of 2025.

This year, the PEPM Group has completed P&IDs drafting work for 15 food processing facilities. PEPM Group is highly experienced in the P&IDs and with the access to the original document providing cost saving the quick turnaround.

For your structural, mechanical, electrical engineering, 3D modeling, and drafting needs, contact jpscual@pepmgroup.com, yzhang@pepmgroup.com, and admin@pepmgroup.com. The PEPM Group is a full engineering service company specialized in food process and energy industries and a leading engineering company for plantwide ventilation and air studies and has provided more than 30 ventilation and air study evaluation projects for multiple customers throughout the country.

ENGINEERING INSIGHT

Fluid Power Hydraulic

Calculate Flows in GPM

- GPM
- Cubic inch per revolution * RPM / 231 cu. In. = GPM
- (2.0 cu.in. * 1750 rpm) / 231 = 15.15 GPM

Horse Power

- Horse power
- GPM * PSI / 1500
- (15 GPM * 1500 PSI) / 1500 = 15 HP

BTU's Created by a Relief Valve

- 1.5 x GPM x PSI = BTU/hr
- 1.5 x 15 x 2000 = 30,000 BTU/hr

BTU's Created by a Compensator

- 1.5 x GPM x PSI = BTU/hr
- 1.5 x .25 x 2000 = 750 BTU/hr

WE ARE HIRING!

For a long-term fulfilling career, a caring, encouraging, and respectful working place, contact PEPM. Apply today at www.pepmgroup.com/careers

- Lead or Senior Structural Engineer (Tulsa, OK) - 5+ years of experience. PE required.
- Drafting Designer (Fayetteville, AR) - 4+ years experience, Associate's Degree in Drafting required
- Business Development Manager (Tulsa, OK) - 5+ years experience, Associate's or Bachelor's Degree preferred
- Accounting Assistant (Tulsa, OK) - 2+ years experience, Associate's or Bachelor's Degree required



A NEW WAY TO CREATE REALISTIC 3D SHAPES USING GENERATIVE AI

Creating realistic 3D models for applications like virtual reality, filmmaking, and engineering design can be a cumbersome process requiring lots of manual trial and error.

While generative artificial intelligence models for images can streamline artistic processes by enabling creators to produce lifelike 2D images from text prompts, these models are not designed to generate 3D shapes. To bridge the gap, a recently developed technique called Score Distillation leverages 2D image generation models to create 3D shapes, but its output often ends up blurry or cartoonish.

MIT researchers explored the relationships and differences between the algorithms used to generate 2D images and 3D shapes, identifying the root cause of lower-quality 3D models. From there, they crafted a simple fix to Score Distillation, which enables the generation of sharp, high-quality 3D shapes that are closer in quality to the best model-generated 2D images.

Some other methods try to fix this problem by retraining or fine-tuning the generative AI model, which can be expensive and time-consuming.

By contrast, the MIT researchers' technique achieves 3D shape quality on par with or better than these approaches without additional training or complex postprocessing.

Moreover, by identifying the cause of the problem, the researchers have improved mathematical understanding of Score Distillation and related techniques, enabling future work to further improve performance.

Original Article: A new way to create realistic 3D shapes using generative AI: [Science Daily](https://www.sciencedaily.com)



IN THE KNOW...

December, which is Latin for ten, was originally the tenth month in the oldest known Roman calendar, the 10-month calendar of Romulus.

2006 NASA reveals photographs taken by Mars Global Surveyor that suggest the presence of liquid water on Mars

1968 First manned Moon voyage Apollo 8 is launched.

1957 World's first full scale nuclear power plant, for peacetime use only, begins to generate electricity in Pennsylvania.

1909 Inventor Leo Baekeland patents the first thermosetting plastic, Bakelite, birthing the plastics industry.

1903 The Wright brothers make the first sustained motorized aircraft flight at Kitty Hawk, North Carolina.

1898 Scientists Pierre and Marie Curie discover radium.

1799 Metric system is first adopted in France.

1620 The Mayflower comes ashore in Plymouth Bay.

1612 Galileo observes and records a "fixed star" without realizing it is the planet Neptune.

Original Article: [OnThisDay: www.OnThisDay.com](https://www.onthisday.com)

The HOT SPOT

2025's top construction conferences

A new year is on the horizon, and with it a new set of industry events and conferences. To help construction pros plan for the year ahead...

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Manufacturing 'neared stabilization' in November: PMI

Manufacturers' showed renewed confidence in the industry's trajectory in November, with companies hiring additional staff, according to S&P Global's U.S. Manufacturing Purchasing Managers' Index...

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Positioning chicken to win with the consumer of 2035

With Generation Z becoming the primary protein purchasers within the next decade, producers should be adapting their products now...

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Salmonella control in poultry takes center stage

There is intense pressure to develop better preharvest approaches to food safety in the poultry industry right now, especially when it comes to Salmonella...

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Navigating sustainability provisions in construction contracts

Every decision made for a project — from what materials are used to how they're transported — has a carbon footprint, and each of those choices has a contract associated with them...

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Technology to improve poultry welfare and sustainability

Price, convenience and taste have pushed poultry meat and eggs past other animal proteins into the top spot in the diets of consumers around the globe. As consumers have become more affluent...

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WE WANT YOUR FEEDBACK!

fakamatala (Tongan for feedback)

To ensure a great newsletter, let us know what you think! Your ideas and stories can make this newsletter a truly engaging experience. Send your suggestions to yzhang@pepmgroup.com. Your feedback is greatly appreciated and valued!

GET PROPOSAL



Have questions about MEP, CSA, industrial refrigeration, process design, architectural, or project management?

Contact PEPM Group at yzhang@pepmgroup.com, admin@pepmgroup.com, (918) 895-6766, or visit www.pepmgroup.com.

December

AWARENESS DAYS



- DEC 1 National Christmas Lights Day
- DEC 2 Play Basketball Day
- DEC 3 Make a Gift Day
- DEC 4 National Sock Day
- DEC 5 National Blue Jeans Day
- DEC 6 National Microwave Oven Day
- DEC 7 Pearl Harbor Remembrance Day
- DEC 8 National Brownie Day
- DEC 9 National Llama Day
- DEC 10 Nobel Prize Day
- DEC 11 National App Day
- DEC 12 Gingerbread House Day
- DEC 13 National Cocoa Day
- DEC 14 Monkey Day
- DEC 15 National Cupcake Day
- DEC 16 Boston Tea Party Day
- DEC 17 National Maple Syrup Day
- DEC 18 National Twin Day
- DEC 19 National Hard Candy Day
- DEC 20 Games Day
- DEC 21 Crossword Puzzle Day
- DEC 22 National Cookie Exchange Day
- DEC 23 National Roots Day
- DEC 24 Christmas Eve
- DEC 25 Christmas
- DEC 26 Boxing Day
- DEC 27 National Fruitcake Day
- DEC 28 Call a Friend Day
- DEC 29 Tick Tock Day
- DEC 30 Bacon Saturday
- DEC 31 New Year's Eve



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