



# MICHIGAN WOODWORKER

michiganwoodworkersguild.com



Michigan Woodworkers' Guild (est. 1981) February 2022 Vol. 43 No. 2

When / Where:

**SUNDAY, FEBRUARY 13, 2022**

(Virtual Meeting Starts: 2:00 PM )

Real Time Virtual Meeting:

## Showcase of Skills

Remote Zoom w/Email Invite to Members

Coordinated by: Ed Stuckey / Jerry Romito

ZOOM MEETING START TIME: 2:00 PM



VIRTUAL MEETING  
CONNECTION DETAILS TO  
BE SENT BY JERRY ROMITO

### FEBRUARY:

Join us at our **2:00 PM February 13th 2022** Virtual meeting featuring our annual "**Showcase of Skills**" where MWG members show us their outstanding projects

### MARCH:

MWG Board members **Dan Holowicki**, **Larry Last**, and **Jerry Romito** will highlight the build process of some of their favorite projects in our **Project Building Highlights 2:00 PM March 13th** virtual meeting.

### APRIL:

Join us at our **2:00 PM April 10th 2022** Virtual meeting as **Vince Hellman** demonstrates his phenomenally artistic Wood Turning expertise in his demonstration "*Making Art with a Wood Lathe*"



## Showcase of Skills February 13<sup>th</sup>

Our February virtual meeting will feature the guild's annual "**Showcase of Skills**" coordinated by, **Ed Stuckey** and **Jerry Romito** where a cornucopia of members will demonstrate via both Live and Pre-recorded presentations.





## President's Corner

By Jerry Romito



February, 2022

In leading up to our January Zoom meeting on 3D CAD, I was wondering if many members of the Guild would be interested in this topic. But I'm happy to report that the meeting had a record attendance, with 52 members present for the entire 2-hour meeting. Based on the attendance and the conversations throughout, it is clear that our members are interested in many forms of digital woodworking, including various 3D CAD programs, 3D printing, CNC routing, and CNC lasers. We even discussed creating a Special Interest Group (SIG) within the Guild on Digital Woodworking. We don't have any formal SIG's yet, but this could be a topic for starting one. If this might be of any interest to you, let me know at:

[GJRomito@aol.com](mailto:GJRomito@aol.com).

The presenter list for our **February 13** "Showcase of Skills" Zoom meeting is growing nicely, with (9) members currently signed up. This includes a special live video presentation by **Ed Stuckey** on his 18th century block front chest of drawers. Since we had (17) presenters last year, there is still room for additional presenters, so if you are interested, please let me know and email your project photos to me at:

[GJRomito@aol.com](mailto:GJRomito@aol.com).

Dust collection is a topic that has drawn my interest since the presentation by **Bill Pentz** last September. Since my shop (like many of us) is in the basement with no windows or easy access to the outside, there are only limited things that I can do to improve my dust collection. But I am taking some baby steps to get started. I replaced my old cloth face mask with the 3M 7502 face mask and the 3M P100 (pink) particulate filter, am in the process of upgrading my Ridgid 16 gallon shop vac with a HEPA filter and cloth bag, and am upgrading my furnace air filter with a MERV 11 replacement media. As I take each step, I will be

evaluating the results with my new Dylos DC1100Pro air quality meter. I hope that this will become more than simply an interesting exercise. I'll let you know the results as I progress. I suspect that we will have another meeting on practical dust collection techniques in the future, where we can share our ideas for improvements.

Please remember to renew your annual dues, either through the website or by mail.

Jerry Romito  
MWG President

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## MEETING REVIEW



By Dale Aushman

### MWG Meeting Review

Dave McCagg – CAD In Woodworking  
9 January 2022

After some fleeting hope for returning to in-person meetings in 2022, due to the increased Coronavirus threat brought on by a new variant, the Guild continued online virtual programs to educate and entertain members in the craft of woodworking. Our January Zoom on “*CAD in Woodworking*” was presented by **Dave McCagg**, longtime member and hard-working editor of our monthly Newsletter. Computer Aided Design (CAD) is increasingly used in professional and hobby woodworking, especially in the design and drawing aspects. In recent years it is finding a home in many a woodworker's shop, creating data files which can drive Computer Numerical Controlled (CNC) routers, engraving machines, and even 3D printers. Thus CAD is an increasingly relevant tool in our woodshops.

Dave has extensive experience in CAD as part of his automotive industry profession. He is an ideal candidate for introducing us to its relevance in our shops and for showing us the basic functioning of a representative CAD capability. He indicates that CAD is an exceptionally accurate tool used to design parts and assemblies electronically long before making any physical parts. It can be used to test fit components, generate part tolerances and support additional downstream operations such as Finite Element Analysis (FEA - estimating strength and flexure of the design object under loads, etc.), CNC cutting, and drawing generation.

Link to PDF Presentation:

[https://michiganwoodworkersguild.com/wp-content/uploads/meetings/Cad\\_In\\_Woodworking\\_1-6-22.pdf](https://michiganwoodworkersguild.com/wp-content/uploads/meetings/Cad_In_Woodworking_1-6-22.pdf).

Link to Audio:

<https://drive.google.com/file/d/1F4SZH8lq5jOiVIAFrG7JnBW6CbCwJXq9/view?usp=sharing>

## CAD In Woodworking

A Versatile Go-to Tool

What is CAD

**CAD** = Computer Aided Design

It is a tool that we use to design parts and assemblies electronically before making any physical parts (Soft Engineering)

It is exceptionally accurate when compared to hand drawings

It can be used to test fit and tolerances

It supports additional down stream operations such as:

- FEA (Finite Element Analysis)
- CNC (Computer Numerical Control) cutting
- Drawing generation

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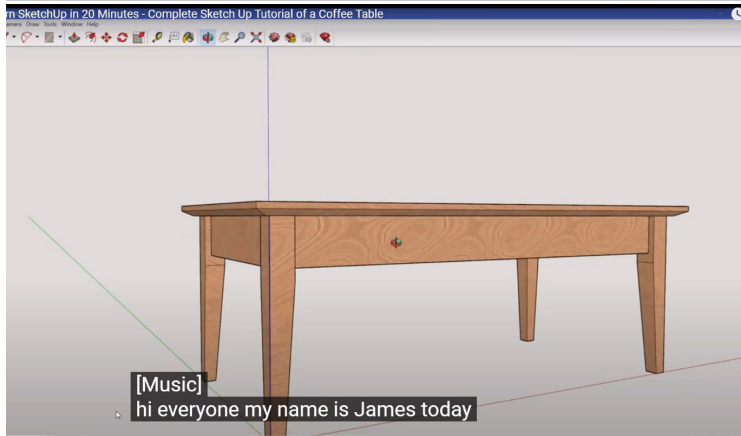
01/06/2022

### CAD Overview

Dave's PowerPoint presentation in pdf format and audio are available on the websites shown below.

Dave says various CAD programs are used in the OEM industry including *CATIA*, *Unigraphics*, *Solidworks*, and *AutoDesk* among others. Each CAD program or package has differently named commands to do essentially the same thing - build a component or part. From components, assemblies are generated to fully describe the end product. Another common CAD system, Google's *SketchUp* (now owned by *Trimble*) is not used by domestic OEM for automotive design, but is perhaps a leading tool for architectural design, with substantive developments in woodworking as well. The OEM systems are expensive (up to thousands of dollars). *SketchUp* is relatively inexpensive (full systems leasing for hundreds of dollars per year) but a fairly powerful limited version is available for free. The *SketchUp Pro* version (not free) can import and export CAD files in various standard file formats (such as stl, dwg or dxf). An advantage of the *SketchUp* software is that it has available (even the free version) an extensive 3D model library containing parts or assemblies from thousands of application areas, many woodworking related. The library





Sketchup Table

is available via a drop down menu item.

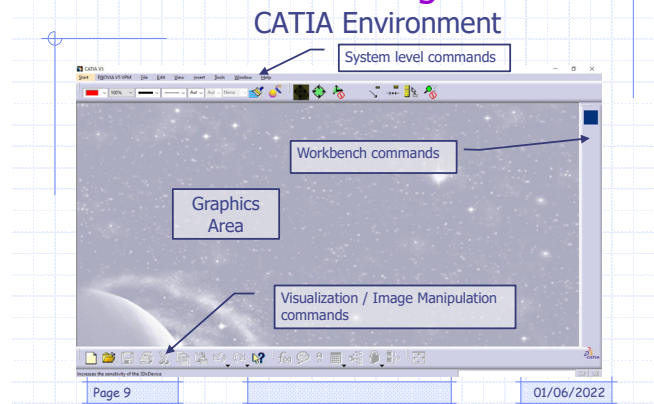
All of these systems require quite a bit of training and experience to master the plethora of commands and functions required to form an efficient and effective design tool.

As an example of how to use CAD, Dave showed us the application of *CATIA* to the design of **Ken Wolf's** Toy Body Coating Jig. He used a limited number of the available 108 *CATIA* modules: Part-Design, Assembly-Design, Drafting, and Knowledgeware. Part design starts by first constructing a 2D profile of the main body, then building a primitive (3D body with shape) by extruding, revolving, or sweeping the profile created earlier. He then adds features such as holes, grooves, pads, or cutouts to the primitive

shape to achieve the final desired design. He showed that the completed part can then be used for assembly with other parts, in FEA analysis, drawing generation, and rapid prototyping such as with CNC cutting or even 3D printing.

Next he introduced us to the *CATIA* computer screen working environment with its graphics area and surrounding tool bars for system, workbench, and visualization/image manipulation commands. One module is the Part Design Workbench, featuring unique command bars surrounding the graphics area which displayed information illustrating a history tree, X, Y, Z Axes, and other drawing graphics. Another module is the Assembly Workbench which shows a listing of the Assembly's component parts and addi-

## CAD In Woodworking



Catia Window

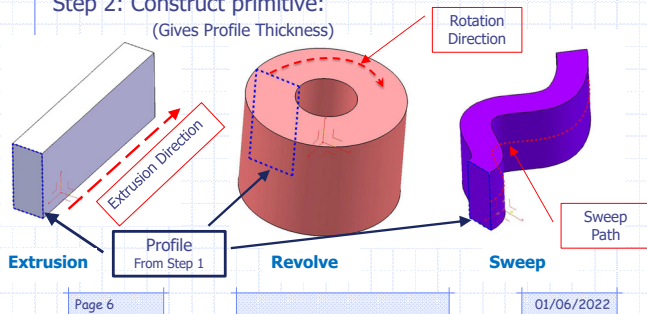
tional workbench commands for part manipulation, positioning and constraining the various parts. A third module is a Drawing Workbench with view listings and unique toolbars for commands used to define views, add construction geometry, dimensions, and text as well as drawing manipulation commands. And finally the Knowledgeware module Workbench, featuring unique commands to turn implicit design methods into explicit input (variables) used to control part parameters and features thus leveraging this information to help make engineering decisions.

After setting the CAD stage for us, Dave then applied the engineering design process to the making of Ken's MWG Toy Body Painting Jig. He first visited **Ron Ross's** immaculate dust free basement work-

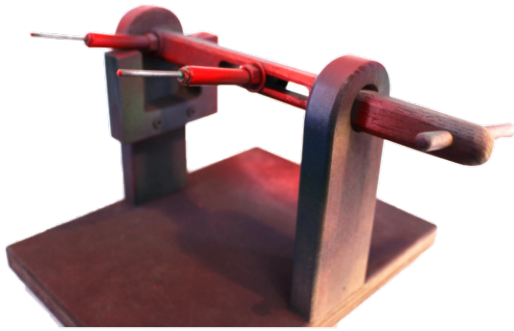
## CAD In Woodworking

### CAD Basic Design Approach

Step 2: Construct primitive:  
(Gives Profile Thickness)



Primitive Shapes



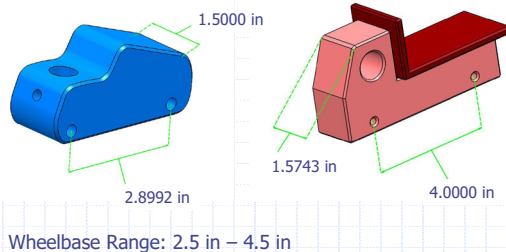
**Ken Wolf Fixture**

process with CAD to design and build an actual jig. Following the design process, Dave then established the jig dimensional parameters to accommodate many cars in the MWG toy program. He would then design the individual parts in CAD after which he created an

## CAD In Woodworking

CAD Process Applied to Ken Wolf's MWG Toy Body Painting Jig

### Parameter Development



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### Parameter Setting

assembly by combining the parts virtually in CAD. After building the 3D solid assembly, CAD model drawings for the individual parts could be made which would drive constructing the physical components using various woodworking techniques. The resultant data files were then used to make plastic fluted knobs using 3D printing. This was accomplished by **Ed Stuckey** using these CAD part files. Ed has extensive past career experience with CAD and has his own 3D printer.

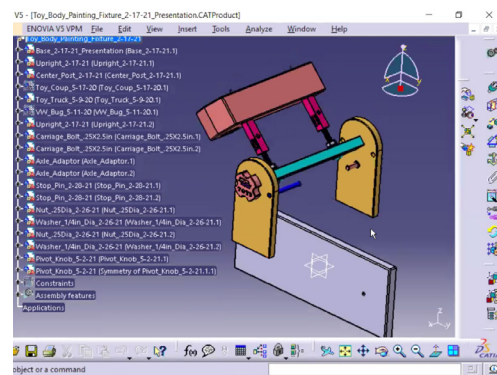
You can find the Fixture Drawing plans on the website with the following link:

[https://michiganwoodworkersguild.com/wp-content/uploads/designs/Ken\\_Wolf\\_Toy\\_Body\\_Painting\\_Fixture\\_12-31-21.pdf](https://michiganwoodworkersguild.com/wp-content/uploads/designs/Ken_Wolf_Toy_Body_Painting_Fixture_12-31-21.pdf).

shop to see the jig in action and to get some cell phone images to assist in the CAD design process. The second step was to go through the development process with CAD to design and build an actual jig. Following the design process, Dave then established the jig dimensional parameters to accommodate many cars in the MWG toy program. He would then design the individual parts in CAD after which he created an

As an example of part build Dave showed the design and "build" of the jig base. He had entered all the relevant dimensions of the base into the Knowledgeware module and then proceeded to build the 3D model of the base. He first generated a 2D profile of the base, followed by extruding it the prescribed thickness, resulting in the 3D primitive. Then using available CATIA tools he quickly added a chamfer around

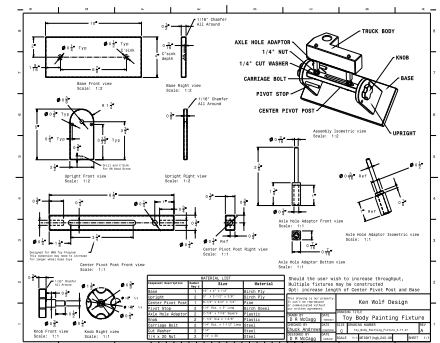
### Base Profile



### Catia Assembly - base needs moving

Having completed the base Dave added the part to the remainder of the jig assembly after which he positioned and constrained the base in its proper position within the assembly.

He next demonstrated the ability of CATIA to quickly and accurately create drawings. One such was a single-sheet drawing showing all the individual parts and their dimensions. This drawing is available for download from the Guild website shown below.



### Fixture Drawing



Dave also demonstrated how individual part models can be easily modified to support changes to the overall design e.g. lengthening the base. Without extensive effort, part modifications are automatically applied to the assembly, then shown in the part's 2D drawing.

Following the CAD design process, member **Chuck Andrews** built the actual jig using Dave's drawings. The Jig worked beautifully.



**Chuck Andrews Jig**

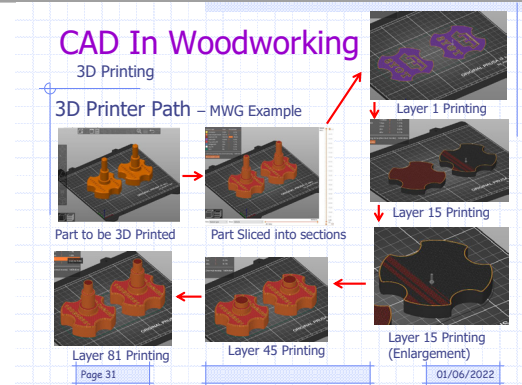
Dave then demonstrated using the *CATIA* data files to drive a 3D Printer to make plastic renditions of a part. The additive technology of 3D printing enables quick prototype construction. In industry, 3D printing and even CNC routing is widely used to make parts without expensive prototype tooling. An advantage of the technology is that it can incorporate design features which are difficult or impossible to make in production, e.g. reverse draft, blind or buried pockets in a casting. It also permits lights-out operation, as 3D printing does not require active operator participation. There are drawbacks such as typical parts made with plastic are not as strong as the equivalent metal parts. But even so, Dave made the case that 3D printing can be ever useful in a woodworking shop, e.g. making custom dust-collection plastic hose connection adaptors to precisely fit various non-mating tool dust ports.



**3D Printed Knob**

There are drawbacks such as typical parts made with plastic are not as strong as the equivalent metal parts. But even so, Dave made the case that 3D printing can be ever useful in a woodworking shop, e.g. making custom dust-collection plastic hose connection adaptors to precisely fit various non-mating tool dust ports.

Dave also reviewed how 3D printing actually works by extruding molten plastic through a tiny nozzle that



### 3D Printing Process

moves in a precise path under computer control. It prints one layer, allows it to solidify, then prints the next layer on top of the first. To begin the process, the solid model of the part to be printed is sliced into layers. The 3D printer then prints each layer sequentially. The tool path for each layer is produced from the slices made in the model and transferred to the 3D printer in an industry standard format known as Gcode. The 3D printer then executes the layer paths defined in the Gcode output. An example given was **Ed Stuckey** printing the fluted plastic handles for the jig, even incorporating the Guild logo and the word "Toys" as engravings in the knobs!

As to equipment, Dave has a Prusa 3D printer which cost as a kit around \$700.

<https://www.prusaprinters.org/>.

Ed's printer is an Ultimaker, model not stated.

<https://ultimaker.com/3d-printers>

Lastly, Dave indicated that both CAD services and 3D printing support is available within the Guild from **Ed Stuckey** (characterized as the "**Guru**") and from Dave himself (self-characterized as "**Novice**"). Dave gave special thanks to **Chuck Andrews**, **Ron Ross**, **Ed Stuckey**, and **Ken Wolf** for their extraordinary help in the development of the jig.

We especially thank **Dave McCagg** for sharing his noteworthy experience and encouraging us to include CAD and 3D printing in our shop resources.

- Dale Ausherman





Your Michigan Woodworker's Guild yearly dues are now payable without expiration through February 2022.

Feel free to get ahead of the renewal process by paying your \$25 dues **Early** and **Often**.

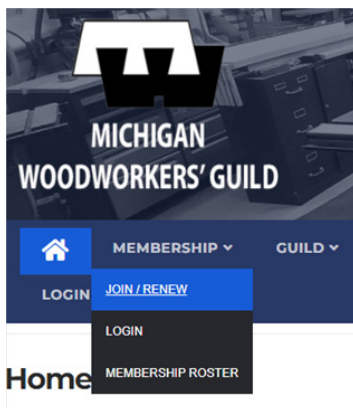
The Membership renewal process is easily completed via the website or by mail. Use the following steps to complete the process.

**Step 1:** Goto the MWG website:

<https://michiganwoodworkersguild.com/>

(Note: Member website login NOT required)

**Step 2:** Curser select Join / Renew option under the Membership tab



**Step 3:** The Membership Application page appears

Membership Application

PAY BY CHECK

[Click here to download the Membership Application Form.](#)

Please print, fill out and attach your check for \$25. Mail to address is on the form.

PAY ONLINE

**Step 4:** Complete an application using either option shown below:

**Option 1:** "Pay by Check"

- Curser select Application form image
- Download the form
- Complete the form typing in the data or by hand

**(PENMANSHIP COUNTS!)**

- Print a hardcopy of the form
- Mail the completed form to the Membership Chair using the address shown on it.

**Option 2:** "Pay Online"

- Scroll down to "Pay Online" section
- Curser select "New Membership" or "Renew Membership" radio box
- Complete the fields in the online application form (**spelling counts**)
- Select the "Continue to Payment" box

Continue to Payment

- Follow electronic payment instructions  
- Upon electronic payment confirmation, an email is automatically sent to the Membership Chair indicating a membership renewal has been received by the Guild website.

**Step 5:** Upon receiving either the email message or the mailed hardcopy form with a check, money order or some other type of payment (**NOTE:** First Born Male Offspring is **NOT** a valid payment option), the membership chair will process the application and mail your Membership Card to the address shown on the application. At the same time, the Membership chair will update or add your application data to the MWG website to support your login credentials.

The Guild looks forward to receiving your 2022 Membership Dues prior to **28FEB2022**.

Pat yourself on the back if you are among those who have already made your 2022 dues payments.



### CHILDREN'S HOSPITAL MWG PROGRAM UPDATE



## From Ron and Dan

The Guild received the following letter from the staff at Children's Hospital indicating their appreciation for the toy and box donations the Guild made in December. Thanks again to all our members who helped with the December donation.

As we move into 2022 there are many things that will try to steal our time but spending a little time making toys or boxes for the children and families that have

to spend time at the hospital can be extremely rewarding.

We have toy drawings on the website that can make getting started easier, and now with the help from Dave McCagg, we have more detailed dimensioned drawings of both toys and jigs to make your efforts even easier.

If you have any questions about getting started, please feel free to contact **Ron Ross** or **Dan Holowicki** from the Toy Committee.

Ron Ross & Dan Holowicki

**Ron** - 734- 812-5531 - rross1508@gmail.com

**Dan** - 313-702-5836 - dan56laura@att.net

30 December 2021

Michigan Woodworkers Guild  
Attn: Ron Ross  
9340 Red Maple Court  
Plymouth, MI 48170

Greetings!

Thank you for your recent donation to the Children's Hospital of Michigan Foundation – it is truly appreciated! It is members of the community like you that help patients and families feel less nervous while seeking necessary pediatric care. Your thoughtfulness is sure to bring smiles to the faces of everyone that steps through the doors here at Children's Hospital of Michigan.

The description of your donation is below:

- Snowpile - Toys (received on 12/9/2021)

Donations help to support patients and families throughout the year. Items are used in many different areas of Children's Hospital of Michigan, including the emergency department, the activity centers, on the in-patient units to support admitted patients and their families, and the out-patient clinics where children are receiving various treatments and may have to sit for a few hours at a time. Donated items can provide patients with comfort and are often a welcome diversion to help reduce anxiety while waiting for the doctor, a medical procedure, or test results.

Thank you again for your generous donation to the Children's Hospital of Michigan Foundation. We greatly appreciate your time and efforts!

With many thanks,

AJ Q.

AJ Quackenbush  
Executive Director of Development  
Hospital-based Initiatives  
Children's Foundation of Michigan  
C: 989.284.2123

Thank you  
Ron!

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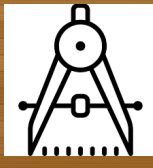
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CHMFoundation.org/support





**MWG  
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CENTER**



## From the Editor

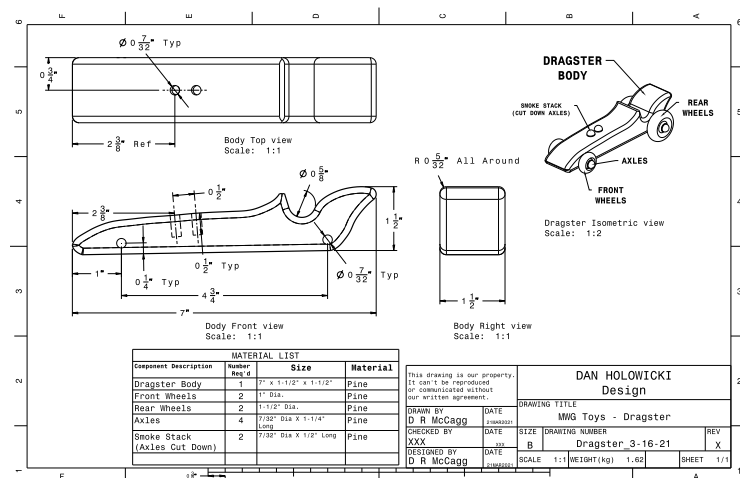
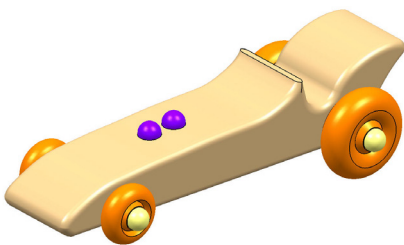
The MWG Design staff has been busy creating new project drawings.

The latest project shown below is another in the line for the MWG Toy Program.

Coordinator, **Dan Holowicki**, designed a Toy Dragster with painted "Drivers".

Find the drawing for this new toy on the MWG website using the link at the bottom of this page.

Everyone is encouraged to make this toy for our Children's Hospital Toy program.



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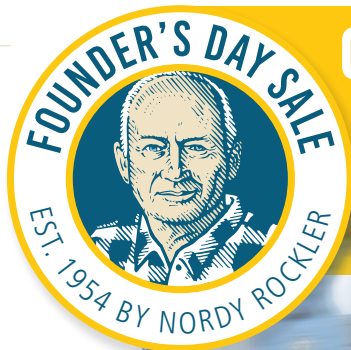
*Special Shop Session*  
with **TOM  
MCLAUGHLIN**

**EPIC**  
WOODWORKING

**MICHIGAN WOODWORKERS' GUILD**

You can find the Dragster Toy plans on the website with the following link:

[https://michiganwoodworkersguild.com/wp-content/uploads/designs/Dragster\\_Drawing\\_3-21-21.pdf](https://michiganwoodworkersguild.com/wp-content/uploads/designs/Dragster_Drawing_3-21-21.pdf)



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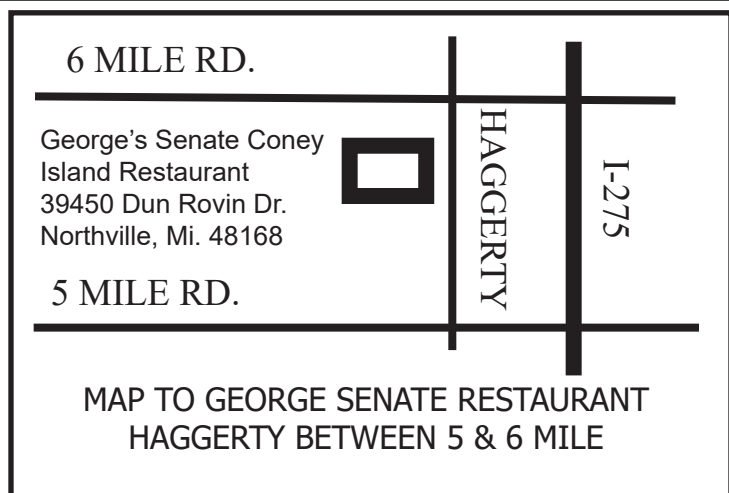
**For membership information contact**

**Dave McCagg at: [d2mccagg@provide.net](mailto:d2mccagg@provide.net)**

**For name tags, sign up with Ed Stuckey at a regular meeting.**

### Executive Board Members / Committee Chairs

Jerry Romito.....	President.....	248-475-5976
Will Wilson.....	Vice President.....	248-207-8883
Ed Stuckey.....	Treasurer.....	313-345-3671
Don Hess.....	Secretary.....	734-207-8427
Dan Holowicki.....	Officer at Large.....	734-283-9898
Tony Gigliotti .....	Officer at Large .....	248-853-8349
Bill Gayde .....	Officer at Large .....	248-859-3949
Ron Ross.....	Officer at Large.....	734-812-5531
Rich Herbert.....	Officer at Large.....	248-628-0644
Ragnar Bergethon...	Officer at Large.....	248-608-8436
Bill Rigstad.....	Officer at Large.....	734-459-3374
Ken Wolf.....	Officer at Large.....	734-981-3423
Dave McCagg.....	Officer at Large.....	734-482-6764
Ragnar Bergethon...	Bylaws chair.....	248-608-8436
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Dave McCagg.....	Newsletter Editor.....	734-482-6764
Dave McCagg.....	Membership.....	734-482-6764
Larry Last..	Programs/Website Calendar.....	248-207-9386
Bob Mills.....	Mentoring.....	248-535-6718
Ragnar Bergethon....	Web Site.....	248-608-8436
Kevin Goulet .....	Camera Chair .....	248-672-5341
Fred Ball....	Web Site Calendar (Backup).....	248-681-3108
Ron Ross.....	Toy Program.....	734-812-5531



**Next MWG Luncheon: (Coordinated by Bill Rigstad)  
Thursday, 24 FEB 2022 at 10:16 AM**