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Brian with wife and friends at Miller Consulting Engineers' holiday party | Portland, OR

Drafting the Details

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Behind every successful structural project is a set of precise, buildable drawings—and behind those drawings is someone like Brian. As a Computer-Aided Design (CAD) technician at Miller Consulting Engineers, Brian plays a vital role in **bridging the gap between concept and construction**. Using specialized software like AutoCAD and Revit, he transforms engineers' sketches, calculations, and design intent into detailed construction documents that contractors can confidently build from.

But drafting isn't just about clicking lines into place on a screen. It requires spatial thinking, technical know-how, and an eye for accuracy—especially when the goal is to prevent costly errors in the field. With 17 years at Miller and a deep appreciation for how things go together, Brian has become a cornerstone of the firm's drafting team.

In this Q&A, Brian shares how he came into the profession, what's changed over time, and what continues to bring him satisfaction in the work. **From old-school hand sketches to modern digital workflows, here's a behind-the-scenes look at the drafting desk that helps bring Miller's designs to life.**

Building Bones is a Miller Consulting Engineers (MCE) series of articles highlighting the fascinating work being done by a small, Oregon-grown structural engineering firm located in Portland, Oregon. We hope you enjoy meeting our team.

MEET BRIAN



Brian Hogue | CAD Technician, Miller Consulting Engineers (MCE)

HOW LONG HAVE YOU BEEN DRAFTING?

I've been doing Computer Aided Design (CAD) for Miller for 17 years now, but I didn't start out in this field. My first job was actually in healthcare administration, which turned out to be a poor fit for me. I knew I needed a change—something more hands-on and creative.

That shift led me into the Forest Products Industry, where I worked alongside my dad designing sawmill machinery and tools. **My dad was good friends with Ray Miller—the founder of Miller Consulting Engineers—and they knew each other through the Tualatin Country Club.** When Miller was having trouble finding qualified CAD drafters, I got the opportunity to step in. **Things were pretty old school at the time. I transitioned to AutoCAD, learned as I went, and have been part of the Miller team ever since.**

YOUR ROLE

What does a CAD technician do?

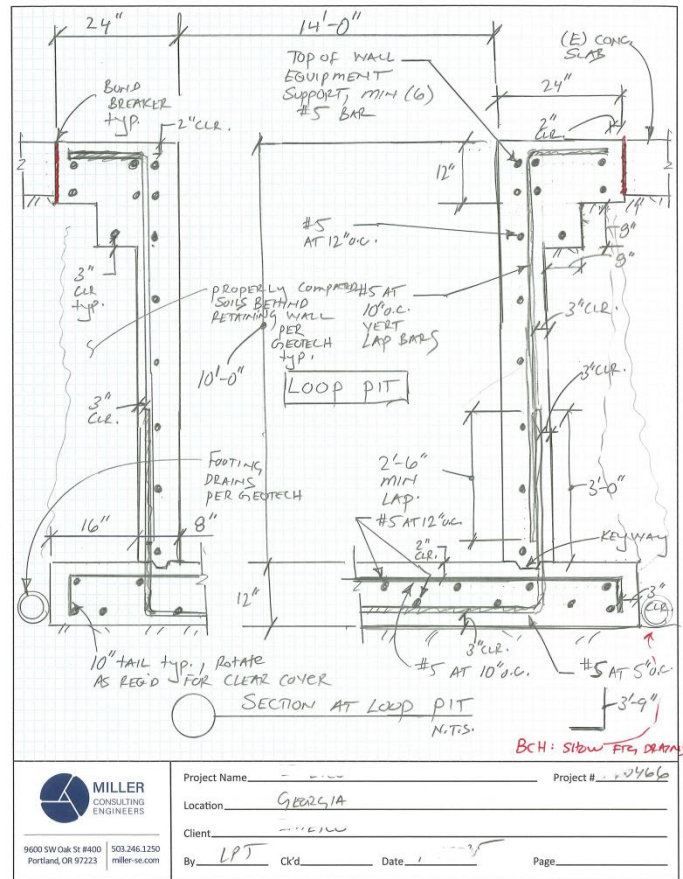
My job is to take the engineer's intention and turn it into construction documents. I start with the overall plan view, and then I cut different views—sections, elevations, and details—to tell the whole story. **I'm focused on things like bolt sizes and edge distances, how a column connects to a beam, or the exact welds and hole sizes that need to be used.** The engineers calculate all that, and then I take the information and turn it into plans that can be built.



It's sort of like creating a sewing pattern for a seamstress—clear, readable, and ready to use. The end result has to be easy to follow with the **goals being: efficiency, clarity, and constructability.**

What does a typical day look like for you?

I have a workspace at MCE, but **most days you'll find me working from my home office**—I tend to be way more productive there. I like having a solid list of projects to work through, each with its own priority. Being idle drives me nuts, and working in a quiet, focused space really helps me stay on track. I get a lot of satisfaction from checking projects off the list—it's a great feeling.



Example of hand-drawn markup ready for CAD

How has the process changed over the years?

When I first started, nearly everything was done by hand. We'd get a plan from the architect—typically on an 11x17 or full-size sheet—and mark it up with pencil. Engineers would sketch by hand, and when those drawings came to me, I'd recreate them in AutoCAD. Then I'd print out full-size or half-size sheets, make the updates, and return the marked-up hard copies with the revisions. That was the rhythm. Now, I rarely see a hard copy. Everything is digital—plans, markups, revisions—it's all PDFs and screen-based workflow.

In those early days, nearly every project passed through my desk. Engineers focused on calculations and design, not drafting. Since everything was hand drawn, they had to think spatially and draw to scale, which made their markups incredibly accurate. One of our partners, Andrew Leichty, PE, SE, is especially talented at that. His ability to hand sketch to scale—with precise lettering and layout—is something to see. It really seems like an almost lost art.

As time went on, the firm decided that Engineers in Training (EITs) should gain hands-on experience with drafting. Today, many engineers draft their own plans in AutoCAD or Revit, especially newer team members.

BCH Weekly Priorities List

No.	Title	PM	Notes	Assigned Priority
0635	Roof Truss Modification	BIS/KRG		7
0094	Kitchen Remodel	JMS/KMM		4
0424	Oregon Fruit Moment Frame	BAM/ERW	Need MUs	8
1174	Home Addition	KMM		1
0740	New Elevator	PRA	Should have MUs finished 05/19	3
0466	Equipment Anchorage	LPJ		2
0651	Mantansuka Street Deck	ERW/SZM	Project Set-Up	5
0417	Fire Escape	SZM/MJ	MUs in Folder	6
0470	ATI	JLT/JMS		9
0673	Reed College Fall Protection	BT/ARL		
1461	Calvary Chapel	BAM/KMM		

Sample CAD Workflow - New priorities every Monday morning.

PROJECT QUEUE

How do you prioritize your task list?

Serving 27 engineers and designers at the firm, I have to employ a system for managing the flow of work—so all projects stay on schedule. **Every Monday morning, the partners go through my project queue (which includes all projects submitted to me throughout the prior week).** Considering client deadlines, engineering schedules, and how much drafting time each project needs, they set the priorities for the week accordingly.

Once I have that list, I just start with number one and work my way through. Additionally, every project and note lives in one central spot, which makes it a lot easier to stay organized. **Occasionally, an urgent project will come up mid-week—a rush job that needs to be squeezed in—and I'll find a way to make that work.** But in general, if a project doesn't make the Monday list, it won't get into my prioritized queue until the following week. That helps keep the workflow focused and efficient.

JOY FACTOR

What do you enjoy most about drafting?

I get a real sense of accomplishment from completing a project—especially when I can look at my priority list at the end of the week and see everything crossed off. That's a good feeling. I love working with the drafting programs, but more than that, **I genuinely enjoy structural engineering and how things go together.**

My background isn't in engineering—I actually have a degree in healthcare administration. I managed a pediatric clinic for a while, but managing people wasn't for me. I shifted into insurance and data analysis, which I really enjoyed. But when an opportunity came up to work with my dad, I took it. That's when I got a real introduction to how things are built—and I've been hooked ever since.

What I enjoy most is taking a concept and turning it into something useful. **Translating an idea into clear construction documents that someone can actually build from—that's the part that clicks for me.**



Project: Cabin Repair Evaluation | Government Camp, OR

FAVORITE PROJECTS

I love seeing our projects out in the real world. It's a bonus on top of how much I enjoy the work. One project that stands out is a cabin repair (Government Camp, OR). I ended up returning to the cabin for vacation after the job was done, and it felt really rewarding to have been a part of something people use and enjoy.

Smith Rock Bridge (Terrebonne, OR) and The Salvation Army Kroc Community Center (Salem, OR) are two additional projects I am particularly fond of having worked on. **It's a great feeling to help create something that benefits others**—especially when it's something local or connected to people you know.



Projects: Smith Rock Bridge & Kroc Center

I also really **enjoy the variety of work** we get at Miller. I've drafted everything from commercial buildings and residences to bridges, art installations, and medical facilities. The mix is fantastic—not a lot of firms offer that kind of range. It makes this a great place for engineers to grow and sharpen their skills. They're not stuck designing the same thing over and over. Sure, some weeks I'll have ten fire escapes to crank out, and I just put my head down and power through. But most of the time, the variety keeps things interesting.

NECESSARY SKILLS

What skills make a great CAD technician?

Attention to detail is huge in this role. So is patience—especially when you're working with a wide range of experience levels across the team. Early in my career, I often trained new employees who were still finding their footing. At the time, there wasn't much structure in place for onboarding or training, so everyone was doing their best to figure things out on the fly. That's changed for the better.

Our education committee has made a big difference in how new engineers are brought into the process. Of course, newer team members are still learning how to create precise and complete markups, which sometimes means a bit more back-and-forth to get a project just right. But that's all part of the learning curve—everyone starts somewhere. **And I see it as part of my role to help make the transition smoother and set people up for success.**



Brian with Lane Jobe, PE, SE | Coffee in hand, preparing to solve the world's problems

CHALLENGES & TIPS

Tips for Smoother Workflows

When engineers send me their markups, I'm coming in fresh—I haven't been living in the details of the project like they have. What makes perfect sense in their heads might not translate directly onto the page. I need a full "manual," so to speak, to create something that a contractor can pick up and build from.

One of the biggest things I emphasize is the importance of drawing to scale and providing complete, clear information.

I often tell newer engineers: imagine you had to draw this yourself. **Could you do it based on what you're handing off?** If not, it probably needs more detail. It's all part of the learning process, and newer team members are still getting a feel for what's needed to make a drawing clear and buildable.

To help streamline the process, I've created a **checklist** for engineers to review before sending projects my way. It's a simple tool, but it can cut down on back-and-forth and make sure we're all working from the same playbook. The goal is always to create construction documents that are accurate, efficient, and easy to follow.



Salish Cliffs Golf Course in Shelton, WA. Ski weekend at Mt. Bachelor, Bend, OR

LIFE OUTSIDE OF WORK

Outside of drafting, I'm all about spending time with friends and family. When I need to step away from a tough project or clear my head, I like to get outside for a walk—or hit the golf course when the weather's good. I also try to take a few trips each summer to places like Sunriver or Shelton, Washington. Snowboarding is a winter favorite, and I always make time for the Super Bowl.

Typically working behind the scenes on projects, structural engineers are the innovators and problem solvers that move the artist's vision into real, workable plans that contractors can use to actually build the structures. Stay tuned for more interviews behind the screens, with the folks whose passion it is to make our structures possible and safe. You can learn more about our team at miller-se.com.

Jane Mayfaire, Business Development | Miller Consulting Engineers | 05/2025 BB19

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