

## **Life Experience Narrative**

### **Curriculum Vitae**

#### **David Morris**

From the age of seven my father allowed me to assist him with his hobby of repairing tube type televisions and radios. (all we had in the 1960's through the mid 1970's) He provided me with entry, through college level textbooks on electronics and electricity, and personally mentored me with hands-on skills like soldering, troubleshooting and alignment of circuits. This, in conjunction with the rebar work at Amber Steel (our family owned business), provided the opportunity to learn to read and interpret construction drawings (blue prints) and Electrical or Electronic Schematics. To this day, one of my primary hobbies is repair and restoration of 1930's - 1960's Tube radios and audio amplifiers.

My actual "paid" work experience began at a young age, sweeping walkways and general clean-up at our family owned reinforcing steel company. Amber Steel was founded by my Grandfather, his wife (My Grandmother), and his three brothers in the late 1950's and existed, until their deaths in the late 1990's.

As I grew older; work experience on Saturdays, Spring Break and Summer vacations included working on remote job sites under supervision of my father or one of my uncles. I was taught many of the skills needed to be considered a good journey level ironworker.

As the late 1960's turned into the early 1970's it became more difficult for a "kid" (under 18 years old) to gain access to heavy construction sites, much less don a tool belt and perform meaningful work. This coincidentally corresponded to the timing of my interest in motors, gas and diesel engines, and cars. To leverage my interest and provide an opportunity for a "kid" to earn some "spending money" my grandfather assigned me to work with his shop mechanic, who proceeded to teach me basic and advanced diesel and gasoline engine theory, and provided "hands-on" experience working on the corporate motor pool vehicles. Repair and maintenance included: Peterbilt, Cummins, White Freight Liner, (Diesel powered Semi trucks) Various Gas, Electric, and Propane Forklifts, Studebaker, and International Pickups, Overhead Cranes, Military Surplus Trucks and Transports and custom built machinery. The experience gained working on a wide variety of equipment has proven invaluable when confronted with mechanical equipment forensic diagnosis and "root cause" analysis.

Between the ages of 16 and 20 my activities at Amber Steel grew to include some of the aspects of managing the business. My duties as a mechanic gave way to running crews of iron workers engaged in prefabrication of reinforcing steel pilings for electrical transmission lines. I learned at an early age how to manage groups or teams of grown men to successfully complete work assignments. Being exposed to the human sociology of men working within a team to accomplish a common goal, having leadership authority over them, while retaining

responsibility for their productivity and safety provided, strong foundational tools for opportunities that presented themselves later in my career.

The opportunity to work in the Rebar prefabrication shop provided experience in the processes, procedures, tools, and equipment required to productively prefabricate reinforcing steel. One of the most valuable precepts I learned for this experience was the importance of efficiency, reduction of redundant material handling and unnecessary steps. My grand Father and Great uncle were “rabid” about NOT “handling anything twice”. This has become one of my biggest “mantras” when searching for efficiency and practice improvement in my current role.

By the time I was 21 I had married my “High School Sweet Heart” and our first child was on the way. When our first son arrived, this caused me to pause and assess “where was I going” with my life and career. At the same time, the opportunity to leave the employ of the family business and learn plumbing and HVAC presented its self, through a friend who’s father owned a plumbing company. (Pike Plumbing) Over the next couple of years Irvin Pike taught me the basics of residential and light commercial plumbing, provided a means to get into the Plumber’s and Steamfitter’s local union.

While enrolled in the apprenticeship program I availed myself of virtually every course that was offered. This was accomplished by taking more than the required (2) Three Hour courses per semester and instead taking (4) Three Hour courses per semester and some Saturday Journeyman training classes. The hard work of the additional courses paid off in experience that made me a valuable employee and afforded the Business Manager the ability to “dispatch” me around some of the less diligent apprentices. By the end of my apprenticeship, I had welding certifications in virtually all processes (MIG, TIG, Stick) and most materials, (Carbon Steel, Various grades of Stainless Steel, Aluminum, Chrome,). Extensive experience in Instrumentation, Controls, Building automation Systems, HVAC, Refrigeration, Plumbing Codes and Design, Drafting and Detailing, layout and quantity take-off, medical gas installation, Plumbing and Piping Detailing and Drafting (pencil and paper based).

Toward the end of my apprenticeship I was employed by Scott Company of California, on one of the first pilot co-generation plants that consumed orchard waste (branches, almond hulls, bark, leaves etc) by burning, to create steam. The steam was used to power a 6 MW electrical steam turbine generator and to provide heat for raison drying racks. The Scott Company Representative (Project Superintendent) recommended that the local Union give me 6 months credit toward completion of the apprenticeship, and give me early journeyman status, to allow them to promote me to Foreman and take over managing installation crews completing owner changes, commissioning and start-up. This began a seven year relationship with Scott company and me , that only ended when the economy got so bad that they were laying off people who had been with them for 20 plus years, During my time at Scott Company, one of the key roles I performed was as forensic investigator for warrantee and claims issues. I was sent to locations or projects to make a fair and honest assessment of the root cause of system failure,

incorrect design parameters, improper installation techniques, component failure etc. Scott Company did a great deal of repeat business with long term clients, and treating each forensic case with tact and diplomacy in the face of frustrated endusers was sometime challenging, but always expected and required. Some common goals in the forensic studies were: to get to the bottom of the problem(s) as quickly as possible, find a recommended solution(s), and implement it/them with the least possible disruption to existing active processes. The experience gained while engaged in these activities has proven to be invaluable throughout my career.

When confronted with assembling this CV and a 40 plus year career's worth of experience, the best I could hope for is hitting the highlights. Each of the bullet points above is a summary of much deeper and broader experience, which can be provided if specific need is identified.

In conclusion, over the past 40 years I have gained a deep understanding and hands on experience of construction and construction processes that give me a unique perspective in the industry. Having worked in many of the roles has given me the ability to formulate conclusions based on practical hands-on experience. Having no fear of technology has afforded the opportunity to take advantage of recent technological advances and apply them (where it makes sense) to outdated construction processes.

## **Work Experience**

### **Dmorris.consulting Freelance Consulting (2016- Present)**

- Expert Witness for the following: Scheduling, Root Cause Analysis, Construction Defects, Delay, MEP Coordination, BIM.
- Corporate Consulting: Process Transformation, Estimating, SOPs, Recruitment qualification assistance, Job Descriptions, BIM Processes, Project Recovery assistance, Creation and implementation of “Best Practices”

### **EMCOR Construction Services Director of Virtual Construction (2008 – 2016)**

- Direct the virtual construction activities and operations of 82 EMCOR companies.
- Assist with review of scopes of work and contract language for BIM and pre-construction
- Provide service to set up new projects engaged in lean and BIM delivery methods
- Provide ongoing review of virtual construction processes and procedures
- Review new virtual construction technologies
- Establish metrics for tracking success or failure of new processes or procedures
- Provide assessments of personnel and department structure
- Act as an industry liaison for EMCOR to the trade associations, software providers and international standards committees
- Heavy involvement in creation of documents to improve industry virtual construction processes and procedures.

### **Virtual Construction and BIM Experience**

- By-line in “The Voice” the Construction User’s Round Table (Owner’s Association)
- Quarterly byline in JBIM magazine 2009-2011

- Authorship of BIM related articles in EC magazine, Constructor, Contractor, PM Magazine, ENR, CURT Voice of the Owner.
- Authorship of MEP Spatial Coordination for Building Information Modeling (accepted into National BIM Standard Version 2)
- Co Authorship of AGC's Contractor's Guide to BIM
- Primary Authorship of CURT Publication UP-1203 "BIM Implementation, An Owner's Guide to Getting Started)
- Chairman of the National BIM Standard Version 2 (2010 through 2012)
- Vice Chairman Building Smart Alliance (2009 through 2012)
- Chairman AGC BIMForum Subcontractor's SubForum (2008 through 2012)
- Member Construction User's Round Table (CURT) Process Transformation Committee (2008 – Current)
- Member MCAA BIM Committee (2010 – Current)
- Author Member of the MCAA BIM Education Committee (2010 – Current)
- Author of the MCAA BIM Education legal and Risk Course (2010 – current)
- Authorized instructor for AGC CM-BIM education program (all modules) (2008 – Current)
- Member of the AGC Education Committee (2010 – Current)
- Member the committee re-writing the AGC BIM education curriculum (2010 – Current)
- US Representative to the buildingSmart International Technical committee (ITM) (2010 – 2012)
- Recognized Industry liaison for construction, to leading solution providers (Autodesk, Bentley, Intergraph, etc)
- Director of Virtual Construction for EMCOR, Responsible for best virtual construction practices for the 82 EMCOR operating companies. (2007 – Current)

- o **Publications and White Papers:**

- o Contributor:

CURT (Construction User's Round Table) UP-1203 Building Information Modeling, An Owner's Guide to Getting Started (*Primary Author*)

- o AGC (Associated General Contractor's) Contractor's Guide to Building Information Modeling (*Contributor*)
- o BIMForum MEP Spatial Coordination Requirements for Building Information Modeling (*Author*)
- o McGraw Hill SmartMarket Report for Construction 2009, 2010, 2011, 2012 Various titles (Contributor)
- o AGC-AIA Industry task force for Design and Virtual Construction Level of Detail-- Level of Development. This is a committee leading the industry to create a documented "LOD" for Virtual hand-offs of 3-D Models and other Design/Construction Deliverables. It is an attempt to add information to the AIA E-202 document.

#### **University Mechanical and Engineering Contractors Director of Virtual Construction (2001 – 2008)**

- **Estimating:**  
Plumbing, HVAC piping and Process piping for numerous Research laboratories valued at over 100mm + each.
- Numerous Healthcare facilities valued at 100mm + each.
- Conceptual Estimates for numerous Biotech, Power, and Co-Generation plants. These conceptual estimates consisted of rudimentary project narratives, some General Arrangement drawings, some specifications. These were typical "blank sheet" "back of a napkin" narratives, used to produce GMP cost proposals that sometimes converted to lump-sum pricing at design completion.
- **Director of Virtual Construction University Mechanical**
- Manage the daily operation of sixty BIM detailers located in Phoenix and San Diego offices
- Provide budgetary estimates of BIM processes to Estimating Department
- Create and track metrics of BIM productivity for department and field operations
- Create track and manage cost and resources loaded BIM and pre-construction schedules

- Create virtual construction resource and labor cost projections for department and individual projects
- Manage computer software and hardware selection and upgrades for virtual construction department
- Built department from six full time detailers at a single location to sixty full time detailers at two locations. (San Diego, CA and Phoenix, AZ from 2005 - 2008)
- Creation of Presentation and Marketing graphics.
- Corporate liaison for virtual construction process between Estimating, Purchasing, Fabrication, BIM and Detailing.

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**JH Kelly Project Manager, Estimator, Detailing Manager (1999– 2001 interim position during 2-year hiatus from University Mechanical and Engineering Contractors)**

- Project manager for commercial industrial projects  
(Sherwood School, PGE Ball Park, PAPE airport hangar, Conoco Phillips Carbon Fiber Plant)
- Turnover manager for 100mm Carbon Fiber Plant in Ponca City OK (responsible for creation of a database to track completion, validation, and acceptance of plant systems for prototype carbon fiber facility. Included creation daily reporting of system for status of: hydro tests, painting, insulation, electrical and controls, equipment installation validation.
- Manage piping detailing department in creation of installation, fabrication and as-built documents.

**University Mechanical and Engineering Contractors (1997 – 1999 2-year Hiatus and return to service 2001)**

- Project manager for \$10mm Design Build mixed use facility in Beaverton, managed construction process, schedules, estimates, billings, personnel. Managed design team Conceptual and pre-construction design to maintain schedule and budget. Extensive Site, Civil, and Infrastructure in addition to the Vertical construction of 3 Story Condos with Ground Floor Retail, a six story office building, distributed heating and cooling system for the site, mechanical and equipment rooms to satisfy loads.
- Detailing team manager for Bio-Research Facility in Thousand Oaks, CA, Managed CAD coordination process for team of 10 in house and 20 outsource detailers. Lead coordination process for General Contractor, and Electrical, Plumbing, Mechanical, and process piping.

**1978 – 1997**

**Various projects including: Health Care, Industrial Piping, Commercial Construction Plumbing, Piping, and HVAC Systems.**

- San Joaquin Hospital Stockton, CA (CAD Detailing of Plumbing and piping system, seismic system design)
- City of Gilroy Waste Water Reclamation Plant (CAD Detailing of Piping Systems)  
Replacement waste water plant for City of Gilroy , CA.



- **Shafter Prison**  
New 1200 bed Prison with onsite infrastructure including commercial kitchens, secure medical facilities, auto maintenance facilities, etc. Detailed all plumbing and HVAC piping systems for fabrication and installation. Created a “detailing to purchasing” process work flow that extracted material quantities, created material requisition forms, and E-faxed them to the off-site purchasing manager. In 1992 this was “state of the art” technology.
- **Vandenberg Air Force Base HVAC replacement project (Layout and installation of HVAC systems)**  
Complete replacement system for a critical tele-communications facility.
- **Space Shuttle Launch Complex Project, Vandenberg Air Force Base (Project Superintendent crew of 120)**
- **Tehachapi State Prison Level-4 High security prison housing and support facilities. (Project Superintendent crew of 100)**
- **Cal Poly San Luis Obispo Co-Gen Facility,(Project Superintendent)**
- **Kern Medical Center new hospital wing expansion punch list and warranty. (Project Superintendent)**  
Forensic examination of Domestic Hot Water system with complaints of “cold water” or “no hot water”. Complex system design, lead to operator errors which turned off valves that serviced certain areas. This became more of political exercise than actual repair. Getting the stake holders to agree to operate the system within the design parameters without exposing the operator’s ignorance was both challenging and frustrating. At the end of the process everyone was satisfied that the system functioned “As Designed” and that the design actually functioned to meet their demand. This was an early point in my career when I learned that what is Right or Wrong” may be secondary to the crux of an issue, and many times solutions are more a matter of social factors than technical considerations.
- **University Mechanical and Engineering Contractors Carnation Ice Cream plant (Detailer-Area General Foreman)**  
**Detailing of piping systems for world’s largest ice cream production facility.** Managed construction crew of thirty for installation of Ammonia and other refrigeration services. Later worked for Process Piping Contractor on same project for Detailing and Installation of FDA Stainless Steel Piping Systems for Ice Cream Production.
- **Anheuser Busch Yeast plant expansion (Project Superintendent)**  
Managed installation crew for major plant expansion. High purity stainless steel processes.

- **Dewey Stephens Wine cooler facility**, Installation of instrumentation, controls, and stainless steel process piping for new facility. Also included extensive work on material handling equipment: Setting and adjustment of: Conveyors. Bottle Machines, Boxing Machines, Labelers. Etc.
- **Various piping prefabrication shops**, detailing and welding of process piping  
ARB Fab Shop: Cryogenic production “boxes”. These “boxes” were approximately 12 feet wide, 12 feet long and 120 feet high when installed. They contained all of the equipment and piping to required to extract the component gases from air. A cryogenic process was employed that subjected outside air to extremely high pressures and low temperatures. As each gas achieved a liquid state, it was “drawn off”. Some of the gases were: Liquid Oxygen, Liquid Nitrogen, Liquid Argon, CO2, etc.
- Edwards Air Force base, Star Wars Defense Initiative facility, Managed installation crew for large process piping project, that later became top secret.
- Multiple Process Piping Projects (FDA Food, Dairy, Semi Conductor, Power and Co-Generation)
- Multiple petrochemical Projects (Oil, Gas and Petroleum)
- Multiple hospitals and schools, managed installation crews

### **Educational background and Industry BIO**

Certificates for BIM, Lean Construction, Process Transformation, CAD, and many others.

Masters of Science Green Building Design San Francisco Institute of Architecture (Completion fall 2014)

Bakersfield College Business, Computer and technology courses

Plumber’s and Steamfitter’s Apprenticeship

Presentations to: AIA, CURT, AGC, MCAA, CSI, NECCA. ASPE, the following industry on the topics of: Integrated Project Delivery, Building Information Modeling, Process Transformation and Lean Construction.

Chairman of the National BIM Standard Version 2 (2009-2011)

Chairman of Associated General Contractors BIM Forum Specialty Contractor’s Sub forum (2005-2012)

Vice-Chairman of the BuildingSmart Alliance (2009-2011)

Participation in: the CURT Process Transformation committee, (2005-Present)

Building Smart International Technical Committee US Liaison (2009-2011)

AGA Education Committee (2010-2011)

MCAA BIM Committee (2010-Present)

Consensus Docs 301 BIM Addendum (Committee to “freshen and update) (2012-Present)

Quarterly byline in Journal of Building Information Modeling (JBIM) (2009-2011)

Participation in the AGC CM-BIM education program curriculum and certificate examination.

Instructor for all four courses: BIM Unit-1 and Introduction to Building Information Modeling, BIM Unit -2 Introduction to BIM Technology, BIM Unit-3 Contracts and Risks for Building Information Modeling, BI Unit-3 BIM Process Adoption and Implementation. I have had the opportunity to instruct over 1,000 individuals with this courseware, over the past five years.