



TAYLOR RYMAR
CORPORATION

Firm Overview &
Related Experience
in Healthcare Master Planning

Prepared for:





November 16, 2016

Leigh Harrison, PE, LEED AP
c/o HGA Architects and Engineers
420 North 5th Street, Suite 100
Minneapolis, MN 55401

RE: Firm Overview & Related Experience in Healthcare Master Planning

Dear Mr. Harrison:

Selecting the best engineering design and consulting firm for your project can seem as imposing as the project itself. It means choosing a firm with a proven track record of successful projects, a list of extremely satisfied clients and a responsive, collaborative and innovative culture. It also means selecting a firm that can manage the smallest details and recognize potential problems long before they occur – and when they do – will work to resolve them swiftly and accurately.

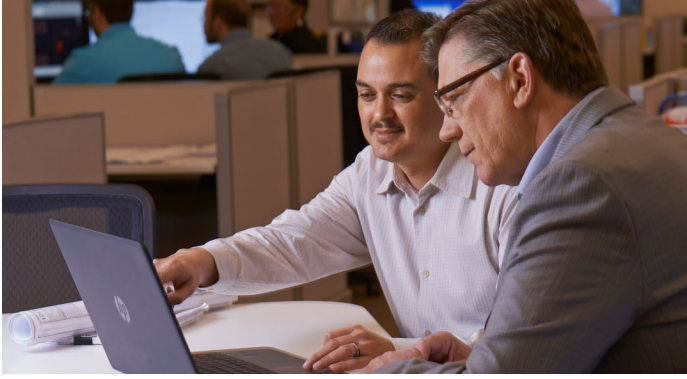
For almost 40 years, Taylor RyMar Corporation (TRC) has maintained a purposeful commitment to these values and it's for this critical reason that we've been sought out to complete more than 350 healthcare projects across Arizona and in surrounding states. We're large enough to bring a multidisciplinary team of seasoned professionals to every project we undertake, but still small enough to remain flexible and focused on your project, in order to provide a customized and highly detailed level of service to you and your project.

Thank you for this opportunity to submit TRC's qualifications package for our experience in healthcare master planning. We're excited about discussing our firm's capabilities and commitment to you and hope you'll agree that we're the best match for your project and your team.

Please find an overview of our firm, as well as a portfolio of previous work that demonstrates our competency in master planning and healthcare engineering. Should you have any questions or need anything additional, please do not hesitate to contact me. We look forward to the potential opportunity to serve you!

Sincerely,

Mario Torregrossa, P.E., FPE
Principal - Mechanical Engineering and Business Development
Taylor RyMar Corporation



Taylor RyMar Corporation (TRC) is a multi-discipline engineering and design firm founded in 1977 with offices in Tempe, AZ (corporate office) and Flagstaff, AZ. We believe a service-focused, team approach is fundamental to our overall strategy to ensure projects run smoothly from start to finish. At the heart of every project, we understand that our client is of utmost importance. Our staff is committed to delivering a high standard of excellence and innovation on all of our projects, consistently being mindful of the user's experience.

OUR RESOURCES

We are committed to provide our staff with the tools necessary to continuously improve our processes and produce high quality work. TRC utilizes the latest versions of AUTOCAD, Navisworks, REVIT (for BIM and three dimensional drawings), 3D Studio Max, and HydraCAD for our designs. Our engineers use several engineering software products such as SKM CAPTOR/DAPPER, PV Syst, Carrier HAP, and AFT FATHOM for hydraulic modeling, and TRIFLEX for thermal expansion modeling. Additionally, we use BlueBeam, Adobe Acrobat, Deltek, and Microsoft products to fully integrate our project collaboration and management systems with accounting and resource management.

OUR QUALIFIED TEAM & THEIR PROCESS

Our professional staff includes registered Professional Engineers, LEED Accredited Professionals, commissioning authorities, and auditing professionals. Our focus on providing exceptional service and exceeding client expectations has allowed TRC the opportunity to work with a highly regarded clientele and continues to open doors for new opportunities.

In order to help maintain quality control standards, we utilize **standard document control processes** for all projects. Each project is assigned a project manager and a key designer or commissioning agent. The project manager is the primary point of contact for the client. All projects go through a rigorous and coordinated quality control review. These reviews are conducted by senior professional staff for approval before projects are issued to the client.



ELECTRICAL ENGINEERING

- Power Distribution
- Grounding & Lightning Protection
- Lighting & Lighting Controls Systems
- Fire Alarm Systems
- Emergency & Standby Power Systems

MECHANICAL ENGINEERING

- HVAC Systems
- Exhaust Systems
- Plumbing Systems
- Process Piping Systems
- District Energy Plants

ENERGY ENGINEERING

- Building Systems Commissioning
- Retro/Recommissioning
- Energy Audits
- Life Cycle Cost Analysis

FIRE PROTECTION ENGINEERING

- Fire Protection Systems
- Fire Pump Systems
- Hazardous Materials Analysis

RENEWABLE ENERGY ENGINEERING

- Photovoltaic Systems
- Solar Thermal Systems

STUDIES & ANALYSIS

- Building Information Modeling
- Short Circuit Coordination Studies
- Water & Air Distribution Analysis
- Hydraulic Studies
- Arc Flash Studies
- Heating & Cooling System Studies

39 YEARS OF EXPERIENCE

COMPLETED WORK IN **19** STATES
AND **5** COUNTRIES

4 RANKING ON
AZCENTRAL.COM'S
LIST OF TOP 100
SMALL COMPANIES
TO WORK FOR IN
ARIZONA IN 2016

PROJECT EXPERIENCE

FLAGSTAFF MEDICAL CENTER MASTER PLANNING

Location: Flagstaff, AZ

Project Owner: Northern Arizona Healthcare

Completion Date: Completed

Reference Information:

Mike Morfeld	Cindy Cox
Principal	Senior Medical Planner
Morfeld Ray Architects	Soderstrom Architects
2727 W. Baseline Rd, Ste 6	1200 NW Naito Parkway, Ste 410
Tempe, AZ 85283	Portland, OR 97209
602-437-1100	503-595-2530
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BACKGROUND

Flagstaff Medical Center (FMC) is a Level 1 Trauma Center and general medical and surgical hospital located in Flagstaff, AZ. This facility serves Northern Arizona with 267 beds and had 13,565 admissions in the latest year for which data are available. Also, FMC staff performed 5,429 annual inpatient and 3,056 outpatient surgeries. Its emergency room had 39,641 visits. There are 214 doctors employed at FMC, which is a member of the Northern Arizona Healthcare network.

In 2015-2016, FMC was ranked as #5 on U.S. News' Best Hospitals for the state of Arizona, as well as being recognized for its excellence in Northern Arizona for its low readmission rates.

OUR SERVICES

Taylor RyMar Corporation (TRC) has been working directly with FMC and with the architectural team to provide analyses and recommendations needed to develop Campus Master Plans for Flagstaff Medical Center.

In these studies, Flagstaff Medical Center was analyzed in its current state and infrastructure upgrades were reviewed to support potential projects proposed by facility staff. In particular, the chilled water, heating hot water, normal electrical service, and emergency electrical service capacities were analyzed and schematic central plant expansion plans were created to support proposed hospital expansions. Individual master planning efforts were also completed for specific proposed projects, such as possible general medical-surgical expansions, OR / surgical expansion, and Cath Lab expansion.

As a result of TRC's work, several infrastructure projects have been completed or are currently in design. These projects include a utility canopy connector from the central plant to the main hospital; central plant energy upgrades; chiller and piping replacements to prepare for needed capacity expansions; and electrical infrastructure upgrades within the oldest areas of the facility.

HEALTHCARE PROJECT EXPERIENCE



Since 1977, Taylor RyMar Corporation has completed more than 350 Healthcare projects across Arizona & in surrounding states. Below are selected projects from Northern Arizona Healthcare's two facilities: Flagstaff Medical Center & Verde Valley Center.

FLAGSTAFF MEDICAL CENTER

- Flagstaff Med Center MC CC Boiler Snow Melt
- Flagstaff Medical Center - CP Pump Replace
- Flagstaff Medical Center - Guardian Trans
- Flagstaff Medical Center - MRI Ultrasound
- Flagstaff Medical Center - OR#1 Remodel
- Flagstaff Medical Center - Oxygen Repiping
- Flagstaff Medical Center AHU Humidification
- Flagstaff Medical Center CT and Ultrasound Remodel
- Flagstaff Medical Center Emergency Department
- Flagstaff Medical Center Heat Exchanger; ED Snow Melt
- Flagstaff Medical Center Hybrid OR Commissioning
- Flagstaff Medical Center Interventional Radiology Commissioning
- Flagstaff Medical Center Interventional Radiology Remodel
- Flagstaff Medical Center Master Planning
- Flagstaff Medical Center Oak Medical First Floor Team Health
- Flagstaff Medical Center Special Care Nursery Temp Work

VERDE VALLEY MEDICAL CENTER

- Verde Valley Medical Center - OR Remodel
- Verde Valley Medical Center - OR Remodel
- Verde Valley Medical Center (FP)
- Verde Valley Medical Center 2nd Floor Med-Surg Assessment
- Verde Valley Medical Center AHS280 Rebalancing
- Verde Valley Medical Center CT Scan Commissioning
- Verde Valley Medical Center CT Scan Replacement
- Verde Valley Medical Center Doctor Loung
- Verde Valley Medical Center Energy Projects
- Verde Valley Medical Center IT Room Build Out
- Verde Valley Medical Center Lab Commissioning
- Verde Valley Medical Center Lab Relocation Investigation
- Verde Valley Medical Center Lab Renovation and Expansion
- Verde Valley Medical Center Meds and Patient Rehab TI
- Verde Valley Medical Center MRI Equipment Upgrade
- Verde Valley Medical Center Nuc Med Renovation
- Verde Valley Medical Center OR#6 HVAC Modifications

OTHER HEALTHCARE FACILITY EXPERIENCE

- Abrazo Community Healthcare
- Banner Thunderbird Medical Center
- Banner Behavior Health Hospital
- Banner Desert Medical Center
- Banner MD Canderson Cancer Center
- Banner Baywood Medical Center
- Banner Casa Grande Medical Center
- Banner Del E. Webb Medical Center
- Dignity Health
- HonorHealth Scottsdale Osborn Medical Center
- HonorHealth Scottsdale Shea Medical Center
- HonorHealth Scottsdale Thompson Peak Medical Center
- HonorHealth Greenbaum Surgical Center
- HonorHealth Deer Valley Medical Center
- HonorHealth John C. Lincoln Medical Center
- Iasis Healthcare
- Maricopa Integrated Health Services
- Kingman Regional Medical Center
- Sovereign healthcare Arizona
- Virginia G. Piper Cancer Center at HonorHealth

PROJECT TEAM



MARIO TORREGROSSA, P.E.

Principal Mechanical Engineer & Fire Protection

Mr. Torregrossa has worked in the HVAC industry since 1986. Before joining Taylor RyMar, he co-founded RyMar Engineers with Rick Ryall. In 2001, Mr. Torregrossa and Mr. Ryall became Principals at Taylor RyMar. Mr. Torregrossa has moved from directing mechanical, plumbing, and fire protection production to maintaining existing clients' expectations and developing new clients. His extensive background in design/build projects and his ability to communicate with construction teams helps ensure a successful project for everyone involved.

Throughout his 30 year career, he has developed an expertise in HVAC and plumbing systems, automatic fire suppression systems, dehumidification and humidification systems, exhaust and VOC abatement systems, critical environments, high density data centers, and due diligence surveys.

- Years of Experience: 30
- Education: Bachelor of Science in Mechanical Engineering from Southern Illinois University, Carbondale
- Licenses: P.E. in five (5) states: Arizona, California, Idaho, Oklahoma, and Washington
- Associations: American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), National Fire Protection Association, American Society for Healthcare Engineering (ASHE), American Society of Plumbing Engineers, National Council of Examiners for Engineering and Surveying (NCEES), Central Arizona Society for Healthcare Engineering (CASHE), United States Green Building Council (USGBC)



JOEL D. DEHAVEN, P.E.

Principal Electrical Engineer

Mr. DeHaven has been in the engineering industry since 1991 and joined the team at Taylor RyMar Corporation in 2000. In 2001, he became a principal owner. Mr. DeHaven's specific electrical engineering experience has included lighting design, power distribution, fire alarm systems design, and other electrical special systems such as security, CCTV, and nurse call systems. He has also designed 4,160-volt and 12,470-volt underground power distribution and interior unit substations; power factor correction capacitor installations; and provides electrical coordination studies, fault studies, and arc flash studies.

Mr. DeHaven has provided electrical commissioning services in support of several projects. Commissioning tasks have included third party design and submittal review, attendance at design charrettes and value engineering sessions, administration of electrical testing and system functional tests, and performance of construction site observations.

- Years of Experience: 25
- Education: Bachelor of Science in Architectural Engineering degree from Kansas State University (Manhattan, Kansas)
- Licenses: P.E. in fourteen (14) states: Arizona, California, Colorado, Florida, Idaho, Iowa, Kansas, Missouri, Nevada, New Mexico, Oklahoma, South Dakota, Texas, and Wisconsin. Additionally, he holds a license with NCEES.
- Associations: Illuminating Engineering Society (IES) and the United States Green Building Council (USGBC)



ELECTRICAL SYSTEMS

Electrical engineering includes designs and systems to provide electricity to a space. Electrical engineering professionals design and develop new equipment and flows of electricity. We use leading-edge software along with the most current design standards and codes to design electrical distribution solutions.

- Power Distribution
- Grounding & Lightning Protecting
- Lighting & Lighting Controls Systems
- Fire Alarm Systems
- Emergency & Standby Power Systems



MECHANICAL & PLUMBING SYSTEMS

Mechanical engineering encompasses those systems which are vital organs of any building or facility. This involves heating, cooling, humidifying, dehumidifying, ventilation, and air movement. These vary in specific demands from commercial office use and manufacturing climate control to hazardous and archive storage use.

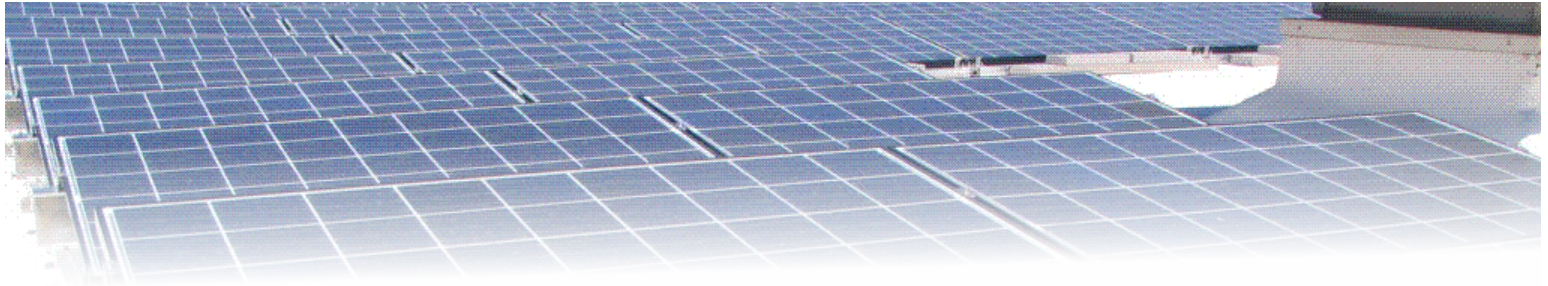
- HVAC Systems
- Exhaust Systems
- Plumbing Systems
- Medical Gas Systems
- Process Piping Systems
- District Energy Plants



FIRE PROTECTION SYSTEMS

Our fire protection experience includes fire sprinkler and fire alarm systems for warehouses, manufacturing facilities, clean rooms, office buildings, and schools.

- Fire Protection Systems
- Fire Pump Systems
- Hazardous Materials Analysis



PHOTOVOLTAIC SYSTEMS

TRC's Renewables Division is highly experienced in the electrical engineering, design and construction administration of commercial and utility scale photovoltaic systems. Since 2008, our firm has completed more than 100 projects ranging in size from 11 kW (DC) all the way up to 364,000 kW (DC) and for sites which include roof, ground mount and canopy systems. Our total portfolio is an amount equal to nearly 10 percent of the total photovoltaic installed in the U.S. in 2015.

As a leader in this space, we offer complete development of electrical engineering documents and specification, including design and analysis. This includes the design of utility scale systems as well as distributed commercial systems with fixed and single axis tracking systems. Our services also include energy storage systems, PVsyst analysis and Neher-McGrath analysis for cable systems.

From pre-project to design and construction, our firm serves as a valuable partner on every photovoltaic project. Our clients rely on us for everything from the engineering and design of the systems to assisting with the layout of PV arrays. We also conduct systems performance analysis to help our clients make the best decisions for today as well as tomorrow and manage code interpretations and variance requests to ensure their projects are successful.

UTILITY SCALE SYSTEMS

Our work in the electrical engineering, design and construction administration of utility scale photovoltaic systems has taken us around Arizona as well as neighboring states. In all, TRC has provided engineering, design and modeling for more than 716 MW of utility scale photovoltaic systems.

Our clients count on TRC to understand what is most important for all stakeholders on a project. This means our projects are safe, reliable and result in excellent performance.

The TRC team is not only highly experienced, but also highly regarded throughout the industry for dependability, ethics and excellent client communication. We are proud to serve as an extension of the general contractor and create designs that meet every project requirement.

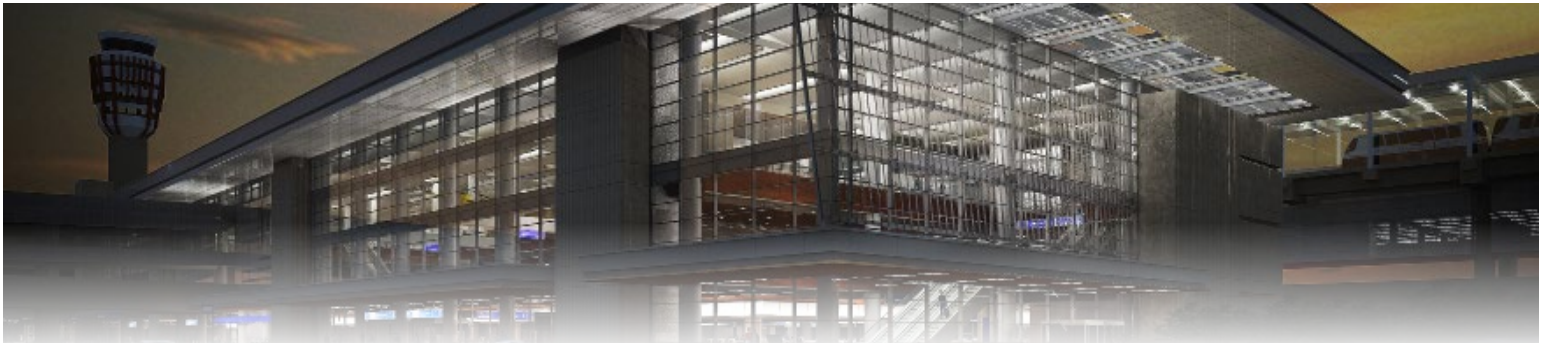


COMMERCIAL SCALE SYSTEMS

Our work in the electrical engineering, design and construction administration of commercial scale systems can be widely seen among much of Arizona's most prominent infrastructure, as well as outside the state. From Arizona State University and the University of Arizona to Bank One Ball Park (now Chase Field) and the Napa Valley Country Club in California, our commercial scale systems provide clean and reliable energy throughout the region every day.

In all, TRC has provided engineering, design and construction administration services for more than 29 MW of commercial scale photovoltaic systems.





In 2014, Taylor RyMar was contracted to provide commissioning authority services for the five-year \$590 million modernization of Terminal 3 at Phoenix Sky Harbor International Airport.

Taylor RyMar Corporation Energy Services Division is a uniquely qualified mechanical, electrical, plumbing, and fire protection engineering and commissioning team with our internal structure that is specifically focused on the integration of commissioning with traditional design, energy conservation, and renewable energy.



As a complement to our core vertical construction design group, TRC's energy services group incorporates lessons learned from our commissioning and retrocommissioning experience into ongoing and future design projects.

Our Energy Services staff includes four senior commissioning authorities/agents, a registered Professional Engineer, LEED Accredited Professional, and energy auditing professionals.

In the last several years, the Energy Services division has commissioned and retrocommissioned over 140 projects for our clients. This includes MEP systems commissioning, large central plants, emergency systems

and fire protection systems for a variety of building types: aerospace manufacturing facilities, airports, courthouses, hospitals, jails, medical buildings, office buildings, schools, and semiconductor FABs.

The TRC Cx team has over 100 years combined construction and commissioning experience in the Phoenix market area with a depth of knowledge that is unsurpassed in the Phoenix market. Several team members started in the test and balance industry or building trades, and this exposure has created relationships with customers, designers, MEP contractors for all types of construction projects. The TRC Cx team's familiarity with the Phoenix market design firms and trades personnel allows us to easily be accepted and allows us to implement the Cx processes and procedures on most projects with contractor acceptance.

All of our commissioning staff are located in our Tempe office. TRC organizational structure has a dedicated commissioning staff to provide a comprehensive approach to each commissioning project. When the need arises for a specific commissioning project issue, our experienced engineering design team is available to supplement our commissioning staff and address technical questions or provide additional building systems expertise.



We feel this organizational structure and team approach sets TRC apart from most commissioning firms who do not have engineering design staff with a depth of design experience at their disposal if needed. Through the integration of these best practices, TRC has developed a reputation for successfully completing projects on-time and on budget, and has experienced a 98% retention rate from our past clients.