

METFAB METALS, LLC

QUALITY ASSURANCE Manual

Ready Reference

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[This Manual has been updated from prior editions for compliance with all applicable Regulations and other applicable specifications, terms & directives of law and contract or from other responsible authorities. This is a trademarked manual that cannot be legally copied or reproduced, to any degree without the written consent of the author or **METFAB METALS, LLC.**]

This Manual is intended to be available to all customers as well as employees and familiar to them to the degree relevant to their respective duties. It provides the guidance necessary to fully comply with the subject contract and law, as well as all other controlling regulation. See inside for more detail. If you still have any questions, please address them immediately, as they arise, to Management.

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PREAMBLE

Our goal here is to outline the principles we follow, here at **METFAB METALS, LLC** to secure for each and every customer safety, the security of his, her or its job specifications and the highest quality products contracted for, to the fullest extent of their availability. These matters are of paramount importance and concern to **METFAB METALS, LLC** and all of the staff.

General Principles

Each customer's safety, compliance with all project/job plans & specifications and security that his, her or its contract/order fulfillment are of such paramount importance and concern to **METFAB METALS, LLC** that only the highest verified raw materials, outsourced items and products have been used and supplied. In line with this foundational—and guiding—principle, we have in place tested, reviewed, secured and redundant verifications that such raw materials, items and products have been supplied/made only by quality-driven entities, in full compliance with all extant standards. Documentation verifying our initial and review protocols are available upon reasonable request and need. [Further refinements for **GREEN/LEED** certification mandates are also retained, recorded and available upon reasonable request and need. All are “backed-up” on a regular basis and stored off-site and offline. This all is in lock-step with our credo, expressed since the inception of this office, to the effect that we deliver in full contract compliance, *on time, every time*. This Manual provides a singular and uniform policy for implementing effective **Quality Assurance** procedures from the outset and fulfilling the multi-faceted goals of your job/contract and this business. While that is our primary goal, it is meant to serve the higher goal of truly first-rate metal fabrication and the supply of top-quality appurtenant products.

Introduction:

Metfab Metals, LLC ("MMLLC") has spent considerable time, effort and expense, at all levels of management and production, over the last three decades, to develop, and thereafter refine, a comprehensive **Quality Control (QC) Manual**. Subsumed within that Manual were the concepts that now underpin this **Quality Assurance (QA) Manual**.

Now, as many of our customers necessarily emphasize the growing need for assuring quality from the *very outset* of a project (to its later completion and even operation, per the ideas now expressed in **BIM** and other contract guidelines), we have developed this full **Manual for Quality Assurance (QA)** which essentially memorializes the operating principles we have used for so many years to guarantee quality both in the raw material we receive and the equipment/ tools we employ from the very first steps in joining a customer's new project, whether it be a small job or a project of national or international impact.

*[We have regularly reminded customers of our availability to consult during the design stage of a job, so as to avoid the selection of unavailable materials, the drawing of a fabrication that is actually incapable of production and other similar drafting errors (often architectural in nature) which idea very much serves the goals of **QA**. E.g., a design that incorporates a beam "size" unavailable from the steel mill later requires either the costly re-design of that aspect or the even more costly custom milling of the designed beam----all leading to unanticipated costs and consequent delays.]* Below is a short outline of the steps we follow from a **QA** perspective. We have set out below the requisite details for this **Manual for Quality Assurance**. If further details are needed on a particular job or project, we can also supply those details, upon request.

FUNCTION:

MMLLC is primarily a custom-fabricator of metals. We supply to our customer as “fabricated” (formerly) raw product that we have configured into metal parts per the specs drawn by the project architect & engineer. As such, two distinct functions are evident: (1) we must carefully review, evaluate and select suppliers & supplies; and (2) we must have the machines/equipment/tools/expertise to strictly comply with fabrication specs, processes and controls (reviews). The latter function is largely a **QC** function (though it implicates the use of many tools, finishing products & machines initially selected). The former function relates much more directly to **QA**. Our many years in the metals business have allowed us to identify the local (needed often for **GREEN/LEED** compliance) and remote suppliers that are reliable, efficient and timely.

SUPPLY: *MMLLC* has been in this fabrication business for over three (3) decades. [Prior to that, the root of this business was in earlier Murray family members and their skills as “tool & die” makers.] Few suppliers we currently use were with us initially. We have followed a winnowing process over that time so that we have “strained out” the non-compliant, untimely or remote suppliers. We have replaced all of those with ones that fill all our (and our customers’) needs to the letter. Of course, we are necessarily dependent on different and varied suppliers for varying aspects of our business.

But basically the supplies (insofar as production, not administration, is concerned) break down into two (2) distinct categories: raw product (metals, lubricants, paints, etc.) and related, functional supplies (tools, machines, equipment, etc.). Both are indispensable to ultimate **QC** success (focused, as it is, on our processes’ ultimate outputs) and essential to compliant **QA**. Our goal is not just acceptable, or even “suitable”, quality in all of these, but rather the highest quality available. The by-far larger

portion of our supplies consists of metals of varying sizes and descriptions. These come in the form of steel, stainless steel, aluminum, and miscellaneous metals, as needed. Related supplies start with our machinery and run from there to shipping products, such as containers, boxes, pallets, and the like. At each stage we have an employee & supervisor with selection and oversight responsibility/supervision.

As so much of our needed supplies are steel and other metals, we routinely rely upon a core of suppliers that have produced conforming, high-quality metals---and done so in a timely fashion. We can report no dissatisfaction with the quality of the products received in that category. E.g., we most often use three (3) local steel suppliers as they have the full spectrum of materials needed for most fabrications and can supply unusual orders or very large orders upon sufficient notice. As a contingency, we periodically order from more remote sources when circumstances dictate.

“BuyAmerica” requirements can also be met from all of these.

EXECUTION: The larger part or the services/products supplied by *MMLLC* to its customers is the result of actual “shop” or machine work. To accomplish this, three (3) basic things are needed (after the metal has arrived): fabrication machines & tools; skilled artisans and workers; and support supplies. Our machinery and tools are in a constant state of improvement as we upgrade all our presses, brakes, shears, punchers and the like to meet the evolving needs of our customers. [Rather than recite all of this here, please read the relevant sections our “Newsletters” and other web pages that report on these transitions regularly. In the 2011-2012 period, we have markedly increased our braking and shearing capacity, as well as our light-gauge metal fabrication with major new acquisitions, for example. **[See Appendix “A”]** As a critical part of the operational context of our machinery and equipment, the tooling is critical. All our equipment is outfitted with an array of tools we have acquired and supplemented over the years so that no fabrication issue might go unmet. Our website also recounts the supervisory and shop capacities of our shop staff. **[See Appendix “B”]**All are fully trained and certified to fabricate, weld and

assemble any part ordered. The related supplies we use, such as welding supplies, paints, lubricants and the like also have gone through a rigorous selection process, so that we now have in-house a ready supply of everything needed----and have available to us for immediate delivery any specially-needed item.

REVIEW: We have in place a regular review process for all our supply systems so that any customer's quality requirements for a product or service can be promptly and fully fulfilled. **Quality Assurance (QA)** here is guaranteed by our systematic measurement, review, feed-back and regular comparison with industry standards. Starting from our COO down to our shop workers, we monitor all our supplies, processes and customer feedback to distill what is fully-compliant and what might be found wanting. Not only error prevention is to be avoided, but ever-higher standards of spec-fulfillment guide us. At times, we "outsource" stages of our production to best accomplish the customer's needs in the shortest time. In this, we are especially vigilant in selecting and exercising "due diligence" as to each process and later reviewing their compliance. As a result, we have long-term "outsources" that are expert in production areas that complement our central in-house fabrication skills.

COMPLIANCE (including environmental, **GREEN/LEED** & other aspects): We like to say---and have stated often (in marketing materials & on our website) that we "*deliver on time, every time*". But this only fulfills half of our commitment to our customers. The other half is that the product is delivered "as specified" and that it is delivered that way *the first---and only-- time we deliver it*. Our contracts (as well as underlying legal principles) require that products be delivered "*fit for intended purpose*". This is actually a minimum requirement which we strive to exceed with each delivery. With appropriate **QA** principles in place, the management and oversight of the quality of all raw materials, timely availability of essential services, product and component fabrication and high-standard **QC** inspection processes, contract and project completion are guaranteed as both timely and "as spec'd".

CONCLUSION: This brief overview is not meant to be an exhaustive recital of the processes we everyday employ to assure the highest quality in all the supplies we consume and that we ultimately pass on to our customers in finished products. This is intended only as a short outline of the larger picture of what our customers may expect from us in jobs, both large & small. For more information, please consult our website (www.mefabmetals.com), call our COO, Jim Murray (973-675-7676) or, better yet, come in and see for yourself on a “shop visit”. [As this *Manual for Quality Assurance (QA)* is updated, revised and/or edited, we will supply copies to all our regular customers----- and to our new customers as they come online.]

Appendix “A”

“Mefab Metals Makes Brake Metal” ---and Much Much More!!

Mefab Metals is a custom and production fabricator of metals, for large and small jobs alike, including specialty items. Our website amply shows that we are an experienced (over 50 years), national and international, well-equipped and well-staffed fabricator. We have long-term relationships with many large contractors that attest to our ability to deliver on-time, every time with parts true to every aspect of your specs! Filling your emergency needs is a particular skill of ours, shipped out immediately on our own fleet of trucks or by common carrier, FedEx, UPS and others, such that we rightly call ourselves a *service* fabricator. Metal anchors have been our “stock in trade”, but we now make a whole spectrum of related and unrelated parts. **AESS*** steel is now a common order as our shop has acquired expertise far beyond most fabricators.

2011 was a *water-shed* year for *Mefab Metals*, as we grew our business despite a sluggish economy and all the inherent pitfalls of “growing pains”. Now, surely, we had for many years been both servicing the needs of many customers with our signature punctuality (“*We always deliver on time.*”) and adding incremental changes to our staff, our competences and our equipment. More specifically, over the last two years we have added a massive new 14’ brake, a matching shear to cut the metal for the brake and most recently a new automated “Notcher” to

better fulfill the ever-more exacting 21st century specs! In the lingo of this business, it's "brake metal" that these machines produce!

BUT-----What is "brake metal"? Basically, the answer is simple: brake metal is the end-product of sheet metal being cut, then run through and "formed" by a machine called a brake or press brake and thereafter finished/assembled to spec. As this resultant product is most often used to add an esthetic (or architecturally "beautiful") look to buildings, both on the exterior and in their interior spaces, it is often called "**ARCHITECTURAL BRAKE METAL**".



[Our new KNUTH 14' Press Brake 1]

Actually, here at ***Meufab Metals***, we use a series of state-of-the-art machines (most CNC-directed), including a shear, brake, notchers, welders and other equipment to provide micron-accurate custom aluminum and steel shapes per the specific job specs. Before being bent in our brand-new brake (14'-0 in length, with accuracy to half a degree), the sheet metal arrives at our shop most often in standard sheet sizes (usually 4' X 8' / 4' X 10' / and 4' X 12'), though we can handle longer custom sheets. Standard Architectural Brake Metal finishes include mill, clear, bronze, anodized, painted and other custom finishes. Standard thicknesses are .040, .063, .125, .188. We also work with mild steel, galvanized metal, brushed stainless steel, mirror-polished stainless steel, brass, copper and other custom metals. From our adjacent shop, we can supply curtainwall clips and anchors made in any size, thickness, finish and fabricated with the slots, grooves and holes called for by the design. Throughout production, our staff/shop personnel follow a rigorous Quality Control (QC) manual to ensure that the required fabrication most accurately traces the design provided in the job plans & specs. In this demanding industry, haphazard quality control can cancel the near-perfect production our machines turn out. Make ***Meufab Metals*** your first call when your job calls for **ARCHITECTURAL BRAKE METAL**. We can save you time, aggravation, job delays-----and money.

Let us quote your next Brake Metal job!

Come in; meet with us; we can help you with practical details; review your specs; avoid "invisible" glitches that might result in costly re-fabrication to meet original job specs. We always offer to work with you from the project concept stage to anticipate metal "issues" before fabrication, to suggest better ways to

order, extrude, cut, drill, paint, finish, even stage and deliver----- and always to save time & money.

Call me; Email YOUR JOB INFO JIM MURRAY, C.O.O.

973-675-7676

jim@mevfabmetals.com

**** For those unfamiliar with this acronym, AESS is Architecturally Exposed Structural Steel, and is finely-finished steel members (prepped, welded, filled, blasted, polished, and/or uniquely painted/finished) to be permanently open to the view and touch of all after the job is done. AESS work is never covered by sheetrock or otherwise hidden from public view. Our COO, Jim Murray, has been an integral part of early AESS projects, such as the BWI International Airport (erected well over a decade ago) serving the Washington, DC/Baltimore area. There you can see the structural steel space frame with its threads, pipes and connections in plain view----- and still shining like its original fabricated & installed condition! Since then, Jim has overseen AESS jobs as varied as the American Jewish Heritage Museum a few years back in Philadelphia and the unique roof ladder coverage at 51 Louisiana in Washington, DC or the Borgata Casino overhang in Atlantic City, NJ. WTC4 (at the restored Ground Zero in NYC) and VCU (Virginia Commonwealth University) will be even grander and more striking examples of this evolving art form and architectural esthetics at which MevFab Metals is proud to be doing the AESS components.***

Appendix “B”

Metfab Metals: Building Envelopes-----and So Much More



A number of years ago, ***Metfab Metals*** adopted the following phrase to identify what we did each day:

“Metal Solutions for Building Envelopes”

As we consistently supplied high-quality metals fabricated to any design of a building envelope component, this was the right way to describe our core business. The problem is that it doesn't describe **ALL** we do---or even can do. We do so much more than work inside that “envelope”. E.g., we make solar panel frames and supports that often sit on top of the building. And ***AESS**** columns and beams, such as the ones we now have in process for **WTC4** face at Ground Zero in New York City or the façade of an academic building at **VCU** in Virginia and the whole spectrum of complex and specialty metal parts.

In short, we make anything that any metal shop can fabricate. We make the steel behind the stone; the steel to set the lobby glazing; the steel to hold the fenestration; the steel to adorn the façade; the stainless to go onto pre-cast panels; the steel to position the solar energy panels, and much more.

[See www.metfabmetals.com]

And since 2009, we have reported here one of our proudest efforts--being part of the team rebuilding Ground Zero, contributing anchors for the granite panels in the memorials pools (now already tested and ready for display to all visitors), as well as a whole array of steel for the towers that are now rising on this hallowed patch of land. When the entire World Trade Center site is once more pristine, we will again report all the parts, anchors, columns, [AESS](#), and other fabricated elements we contributed.

All of this reminds us that, at bottom, we are just an old-fashioned “machine shop”, turning out whatever is ordered with whatever modern machines we add to get this done--right, as spec'd and on time! Yes, many of our machines now respond to computer commands and are CNC, but we still just drill, punch, bend, cut, shape and finish the metals you ask in the design you give us.

Every month we at [Metfab Metals](#) finish jobs and look back at the myriad items we've made and delivered, some per the original plans and specs, others per the ongoing needs of the job. We always offer to work with our customers from the start or design phase, to anticipate issues before fabrication, to suggest better ways to order, extrude, cut, drill, paint, finish, even deliver and always to save time and money. Call us, *indeed use us*, and come in for a job meeting to go over your job's real metal needs before the job starts. Cost overruns, time-consuming change orders, aggravating plan revisions, and many other costly items can be avoided this simple way.

[And NOW! Let us help you fill all your WBE, CCR/SBA and other set-asides too!](#)

[Call me NOW!](#)

Call me. Let me help with all your fabrication needs—small or large—and problems!

Jim Murray, C.O.O.

973-675-7676

jim@metfabmetals.com

* For the novice, ***AESS***, or ***Architecturally Exposed Structural Steel***, is finely-finished steel members (prepped, welded, filled, blasted, polished, and/or uniquely painted/finished) to be permanently open to the view and touch of all after the job is done. ***AESS*** work is never covered by sheetrock or otherwise hidden from public view. Our COO, Jim Murray, has been an integral part of early ***AESS*** projects, such as ***BWI International Airport*** (erected over a decade ago) serving the Washington, DC/Baltimore area. There you can see the structural steel space frame with its threads, pipes and connections in plain view----- and still shining like its original installed condition! Since then, Jim has overseen ***AESS*** jobs as varied as the ***American Jewish Heritage Museum*** a few years back in Philadelphia and the unique roof ladder coverage at ***51 Louisiana*** in Washington, DC or the ***Borgata Casino*** overhang in Atlantic City, NJ. ***WTC4*** and ***VCU*** will be even grander and more striking examples of this evolving art.



[Borgata Casino, Atlantic City, NJ]