



WESTERN FORMS®
ALUMINUM FORMING SYSTEMS
COMMON SENSE CARE & MAINTENANCE





Longevity. Consistent finish. Extended value. These are all terms rightly associated with aluminum forming systems, but just like any quality equipment, realizing these benefits doesn't happen by magic. With some common-sense care and maintenance, you can get the best performance out of your forms for years to come.



Would you clean your car with a hammer? Probably not. After all, it's not really going to clean it, and you'll be damaging the vehicle itself, affecting its resale value, appearance, and performance. Knowing this, why do so many contractors still try to clean their forms with a hammer?

Damage from hammer blows is one of the leading contributors to poor form resale value, decreased panel performance, and even increased labor costs. Even what appears as minor damage can lead to major problems in a short amount of time.

Now take that same car and drive it for 7 years without ever changing the oil, use diesel fuel instead of recommended unleaded gasoline, and don't bother to ever wash off the bug remains and ice salt that can eat through your paint. Most responsible car owners wouldn't think of treating a vehicle that way. They know that even the best cars in the world need ongoing maintenance, even just small things like checking the tire pressure, to stay in top condition. So why do some many contractors neglect their forming systems – one of their biggest equipment investments – by not oiling properly or inspecting for wear and tear?

As a rule, you should plan to spend around 3% of the original cost of your forming equipment each year on common-sense maintenance. Ignoring these simple items is not a cost reduction! The long-term effects of improper oiling and lack of attention to minor defects can end up costing you thousands of dollars in repairs and replacements.

Do these sound familiar?

1. "I've always done it this way"

Bad habits can be broken! Learn proper techniques that actually clean the forms and help maintain their value. Simply whacking concrete off with a hammer does not clean or help your panels perform in any way.

2. "It's easy to clean with a hammer"

It's easier to maintain your forms without a hammer. Go beyond removing chunks of concrete buildup with simple, ongoing processes that actually reduce your cleaning time and increase the value of your panels.

3. "It's cheap to clean with a hammer"

A quick hammer blow may seem like an inexpensive method for cleaning a panel, but the results could be financially disastrous. Imagine paying employees extra time to actually ruin your equipment! Not only do you incur extra labor costs with the time it takes for each blow, but you'll need to replace your forms sooner and could even lose business when your damaged panels start pouring inferior walls.

4. "Quality form release oil is too expensive"

A high quality form oil may look more expensive up front, but you'll discover that your per-use cost can be dramatically lower. A good release agent requires only a thin application that doesn't use as much oil per project. The difference you can see in the form performance and the reduction in concrete build-up more than offsets the initial price.

While you may feel that you will use your current set of Western Forms® panels forever (and you just might!), keeping their value high for possible resale/trade-in and achieving the best results pour after pour is never a low priority.

Following are the top 11 items that the Western Forms Used Forms Department looks for in evaluating an individual panel's worth. We'll tell you what you can look for, why it's important, and how you can avoid future problems.

Whether your forms are brand new, or you're already looking to trade in, keep these warning signs and best practices in mind.

1

DENTS OR HOLES IN FACE SHEET

More than just surface damage, dents and holes in your face sheet can lead to large problems in wall finish, form weight, and performance.

A hole under the hat provides an ideal opening for concrete to leak in and increase the weight of the form. The panels then require more effort from your crew and can slow production down or increase the risk of injury.

When drilled, nail holes remain small, quickly fill with concrete, and usually do not cause a problem. However, holes caused by a hammer can actually create deflection in the face sheet, resulting in pillowing and an inferior wall.

Hammer blows on both sides of the form can result in problems. Hitting the face sheet creates a dent that allows knots of concrete on the finished wall. These provide an uneven surface, with the excess concrete needing to be knocked off prior to finishing the wall with 2x4s later. The common practice of hitting the form on the back at the hat section can end up with a 1/4"+ of deflection between the hats. This results in pouring a wavy wall.

How to avoid dents and holes in your face sheet:

- DO NOT drop any objects on the panels, including other forms
- DO NOT use a hammer to knock concrete off of the form
- DO NOT use a hammer or mallet to vibrate concrete
- DO use a drill to create nail holes



Damaged was created when a panel was dropped on to the face sheet.



The dent in this panel is a result of a blow during vibration.

2

LINE WELD BREAKAGE

Even a slight crack in a line weld on your hat section can signal trouble ahead. As a weld begins to break, its ability to hold the face sheet on the panel is compromised, resulting in the face sheet gaping away from the panel itself. As the panel/face sheet separates, concrete pours in, sets up, and adds up to 40 pounds of unnecessary weight.

Using a forming system with a high number of line welds helps to protect the overall form from initial damage, but you still need to check the panels a few times a year to catch a break or crack early. Concrete can cover or hide a weak point so be sure to look carefully and have a clear understanding of what you are looking for.

Most line weld problems are the result of hammer blows, particularly hitting on the hat sections to knock off excess concrete and hitting the face sheet between the hats to vibrate concrete. Using the proper tools for these activities can eliminate the hammer damage to your line welds.

How to avoid line weld breakage:

- DO NOT use a hammer to knock concrete off of the form
- DO NOT use a hammer or mallet to vibrate concrete

- DO choose a forming system with greater than 8 welds
- DO fix damage as soon as possible
- DO inspect your forms on a regular basis



The line weld is broken after a hammer strike.



Two adjacent welds broken.

3 PERIMETER WELD BREAKAGE

Perimeter weld breakage is not the same as line weld breakage. In fact, it's even more serious and can render a form useless with only scrap value to show for your investment.

Perimeter welds are found along the entire length of your siderails and end bars where welded to the back side of the face sheet. Damage occurs when a hammer strikes the siderails, hat, and face sheet, usually as a means of knocking off excess concrete. The placement of the welds makes them difficult to see, so look for early warning signs such as slight face sheet peel and ugly seams in the finished wall.

The main risks of perimeter weld breakage are a complete separation of your face sheet from the form panel or a caved in hat section. These cannot be cost-effectively repaired, and you cannot continue to pour safely with the damages.

How to avoid perimeter weld breakage:

- DO NOT use a hammer to knock concrete off of the form
- DO use proper oiling techniques to reduce concrete buildup
- DO inspect your forms & finished wall on a regular basis
- DO use a form scraper to remove excess concrete
- DO choose a form with an inset face sheet
- DO choose forms with attached hardware to reduce hammer blows needed to remove pins



The broken welds along this siderail, caused by hammer damage, led to noticeable face sheet peel.



Perimeter weld breakage caused by hammer blows has caused the hat to cave in (dark depression).

4

CAVED-IN HAT SECTION

Destruction on the back of the panel plays an important role in overall form performance. Caved-in hat sections change the shape and structural value of the hat section integrity and cause weld failure. Concrete blowouts and extensive form damage are just two of the problems caused by a caved-in hat section.

Many cave-ins start where the hat meets the siderail. Factors that weaken or contribute to a caved-in hat section include dropping panels on top of each other (usually during stripping), driving nails through the hat, and hammering directly on the hat or siderails to remove concrete buildup.

The cave-in increases the siderail exposure and repeated hammer blows begin to batter the siderails. A collapsed hat can even cause the siderail itself to move. These damages means the siderail no longer sits flush with the form next to it, allowing an endless cycle of even more concrete seepage and buildup.

More important than extra buildup, forms that cannot line up correctly run the risk of inaccurate wall thickness and dropped ties. The thickness of an 8" wall can increase to 10" or even 12" between the same two panels as the forms with a caved-in hat are forced farther apart. This stretches the distance between the ties and makes securing pins properly hard to achieve. The weaker hold on the ties can lead to tie failure and a costly, potentially hazardous, blowout.

Caved-in hat sections are a major repair and may even result in a form being scrapped.

How to avoid a caved-in hat section:

- DO NOT use a hammer to knock concrete off of the form
- DO NOT hammer on the back of the hat
- DO NOT drop objects, including other panels, on the form
- DO NOT drive nails through the hat section

- DO use proper oiling techniques to reduce concrete buildup
- DO use a form scraper to remove excess concrete

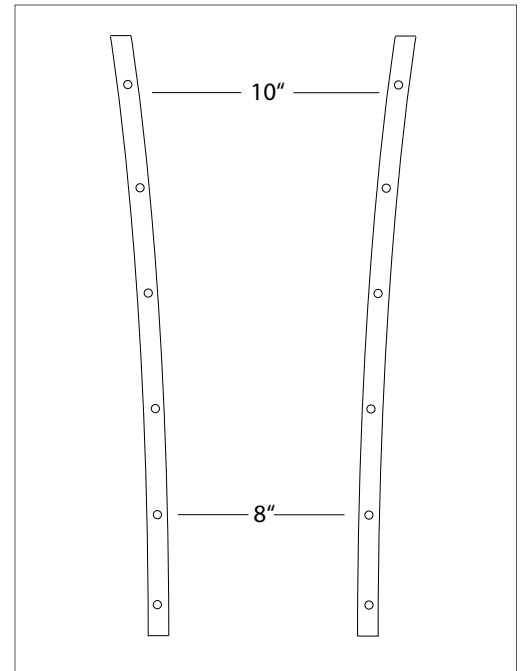


Chart illustrates the difference a bow created from a caved-in hat section can create in the thickness of the wall.



This caved-in hat section was caused by repeated hammer blows.

5

BAD OR MISSING BUSHINGS

Every piece plays an important part and something as simple as a missing bushing can weaken your entire panel and force expensive repairs.



This bushing no longer sits flush with the form.

A bad or missing bushing can change the shape of your bushing hole from round to teardrop, wearing away the aluminum and affecting the amount of concrete pressure the form panel can hold. This can ultimately lead to a disastrous blowout. Maintaining your bushing performance requires following a few simple industry procedures.

Make sure you are using the proper number of ties in each pour. For example, using only four ties for an eight-foot wall can add too much pressure to the bushings. Always placing ties at the recommended locations can help avoid bushing failure and blowouts.

It's also important to use the right tools for the job. Incorrect pins or pins without a taper can contribute to bushing damage.

If your siderails are compromised, or there is excess concrete buildup on the siderails, avoid the temptation to use your PinLock™ handle to bridge the gap. This puts unnecessary pressure on the bushings. If concrete is present on the siderail, do not use a hammer to knock it off. Directly punishing your form in an attempt to clean it will harm the bushing.



These bushing holes were altered due to incorrect tie usage (too few ties).

How to avoid bad or missing bushings:

- DO NOT use fewer ties than needed
- DO NOT use a PinLock handle to pull forms together
- DO NOT use pins without a bushing
- DO NOT use a hammer to knock concrete off of the siderail

- DO use the proper type of pin
- DO follow recommended tie placement charts
- DO perform normal maintenance on siderails
- DO use a form scraper to remove excess concrete
- DO use attached hardware

6

STRAIGHTNESS OF PANELS (1/8 - 1/4)

Would you buy a panel that bowed 1/8" or more? Only if you wanted to spend more on labor than was necessary! Yet, many contractors continue to inflict the damage that causes bowing and use bowed panels until they can no longer be salvaged. (Panel bow is measured where the gaps between panels are the farthest apart. To determine your bow, lay a straight edge on the back of your form at the siderail. Then, measure the distance between the straight edge and the siderail.)

The straightness of your panels can be altered due to your stripping techniques. Using only one Form Stripping Tool, or stripping from the top only, can create a bind or bow in your form. Aluminum is a flexible material and removing a form from a tight space requires equal pressure on each side. Pulling from the top can create a panel that bows towards the face sheet. Pulling from one side only can create a diagonal bow that means the panel can no longer sit flush against the next panel in line.

While the damage is caused during stripping, the effect can easily be felt during the next setup. A panel that used to require one crew member to set in 30 seconds now needs at least two members and 3 or more minutes to pull, tug, and push the panels together, using a clamp for a more secure hold. This manipulation can end up damaging the form even more. Fixing a bowed form often breaks the siderail, leaving the form with nothing but scrap value.

Other contributing factors that affect the straightness of a panel are improper tie placement putting unnecessary pressure on the form; hammer blows on the siderails that cause the form to curve (see Battered Siderails on page 8); and using panels for ramps or other non-forming activities.

How to keep your panels straight:

- DO NOT use a hammer to knock concrete off of the siderail
- DO NOT use panels as a ramp or walk on forms
- DO NOT strip panels from the top

- DO strip from the side, using two Form Stripping Tools
- DO follow recommended tie placement charts
- DO use a form scraper to remove excess concrete



This panel was bent after a tie blowout when the crew used four ties instead of five.



The bow on these panels will be difficult to repair.

7

BATTERED SIDERAILS

Hammer blows to a siderail quickly take their toll. Hammer blows turn a straight siderail into a bowed siderail because the metal is compressed, putting tension on the form. Repeated blows can cause an entire panel to bow while also making the aluminum so brittle that straightening leads to broken siderails, and ultimately, scrap value.

If you are lucky enough to escape panel bow, your hat sections may not fare as well. A leading cause of caved-in hat sections starts with battered siderails. Hitting the siderail at the hat location causes the hat to collapse, therefore creating a gap between the siderails when setting forms. This adds time to the form setting process and may result in a subpar finished wall. Remove any concrete buildup with a scraper to avoid the practice of beating your rails with a hammer.

How to avoid battered siderails:

- DO NOT use a hammer to knock concrete off of the siderail
- DO perform normal maintenance on siderails
- DO use a form scraper to remove excess concrete
- DO choose forms with gaskets



A broken siderail can lead to scrap value.

8

BATTERED ENDRAILS

Hammer blows can damage an endrail, but they are not the #1 enemy. Improper form handling results in conditions that harm your panel and your finished wall.

Carelessly dropping a panel onto a footing or other form causes a majority of endrail damage. The weakened endrail can break the corner shared by the siderail. A wrinkle on the endrail can also spread to the face sheet and show up in your poured wall.

How to avoid battered endrails:

- DO NOT drop panels on the footing
- DO NOT use a hammer to knock concrete off of the endrail
- DO handle with care
- DO use a form scraper to remove excess concrete



Dropped panels can have disastrous results for your endrails.

9

FACE SHEET PULLED AWAY FROM SIDERAIL

A gap between your face sheet and siderail is a perfect invitation for concrete to seep in and buildup inside your form. This adds extra weight to the panel and increases the work for your crew. Once inside the form, the concrete can also create a bulge or depression that can be seen on the wall as an ugly seam.



Walls poured with this form will have an ugly seam, and the concrete will seep into the panel.

Using two Form Stripping Tools during stripping can help reduce your chances of face sheet peel. Using only one tool tends to put the form in a bind. When the form binds against the other forms, the contact points are now the face sheet on the form being stripped and the siderail on the form next to it. This operation tends to pull the face sheet away from the siderail. Forms with an inset face sheet help eliminate this problem, but care should still be taken during the stripping process.

Hammer blows to the back of the panel, hat sections, or on the side of the siderail can also weaken the bond between the face sheet and the form. The affected face sheet allows for additional weight gain as the broken welds under the hat create a gap, allowing the face sheet to roll and separate from the siderail.

How to avoid face sheet peel:

- DO NOT use a hammer to knock off concrete buildup
- DO strip from the side, using two Form Stripping Tools
- DO use a form scraper to remove excess concrete
- DO inspect forms regularly

10

EXCESSIVE CONCRETE BUILDUP

Additional weight may seem to be the obvious peril of excessive concrete buildup, but it is not the only problem.

Concrete that builds up on your face sheet will be reflected in the quality of your wall. Any area where the concrete exists as a "clump" will show as a dent in the wall, ruining the flat surface your customers expect. Even a more uniform buildup can affect the wall, changing the thickness of the final pour as much as 1/8".

Keeping your panels lightweight and buildup free is as easy as following proper oiling techniques. A good form release agent will reduce the likelihood of concrete sticking and make any remaining concrete easier to remove with just a scraper.

How to avoid excessive concrete buildup:

- DO use a quality form release agent
- DO oil the face sheet and siderails every time prior to setting
- DO inspect your forms regularly
- DO clean your forms properly



The buildup on this face sheet will lead to uneven wall finishes and added weight for the crew.

11

EXCESSIVE WEIGHT

Heavier panels are harder to work with! Take care in keeping your panels lightweight to keep your crew in top condition.

Excessive weight is the result of concrete buildup. This can be on the face sheet, hat sections, siderails, and even inside the panel itself. Just because you can't see it doesn't mean you can't feel it. If your panels seem to be getting heavier, perform an inspection to find weak points and areas that need to be cleaned.

Reduce concrete buildup by using proper oiling techniques. Form release agent is designed to help eliminate the occurrence of buildup. Don't think of it as something that is required for a project, but required for routine maintenance of your panel investment.

Limiting the damage created by hammer blows and improper stripping techniques will also reduce your buildup. Don't provide an entry point for concrete to gather inside the form by using care around the hat sections, siderails, and face sheet.



This panel gained 40 lbs when concrete seeped behind the face sheet.

How to avoid excessive weight:

- DO NOT use a hammer to knock off concrete buildup
- DO use a quality form release agent
- DO oil the face sheet and siderails every time prior to setting
- DO oil the back of the panel before the 1st pour and every 5-10 pours
- DO inspect your forms regularly

MAIN CAUSES OF FORM DAMAGE (and how to avoid them)

Keeping your forms safe from the most common types of damage can really be narrowed to three simple things to practice every day:

USE PROPER TIE PLACEMENTS

Excessive wear that can lead to broken bushings and panel bow can be reduced by following proper tie charts and pin/wedge usage.

USE A FORM SCRAPER TO REMOVE CONCRETE BUILDUP

Put your hammer down! It's impossible to clean anything with a hammer and you will end up paying your crew to damage your panel investment. Hammer blows will lead to holes, damaged siderails, endrails, hat sections, weld breakage, missing bushings, rolled face sheets, improper PinLock™ positioning, panel

bow, pillowing, and inferior walls. Not one of these will make your forms cleaner or more productive.

USE PROPER FORM OILING TECHNIQUES

When you use the correct form oil, and use it wisely, you won't even have to worry about concrete buildup and won't be tempted to pick up a hammer. Take the time to choose the best form oil for your projects and discover the optimum methods for application. Put an end to the dangers associated with concrete buildup when you eliminate the buildup itself.

Practicing proper form maintenance techniques not only helps your forms, it keeps your employees safer. Damaged forms can lead to a blow out and may injure, or even kill, a person on the wall. Hitting the form or concrete creates a potential eye injury.

QUICK TIPS FOR MAINTAINING FORM VALUE

1. Use a high quality release agent. For best results, oil your forms before erecting. Cover the face with release agent before every pour. Do not over apply. Follow manufacturer guidelines for correct square foot coverage.
2. Don't forget the gaps. When checking ties, spray your release agent in the gap between the siderails, allowing the spray to hit on the hat section, 2-3 inches away from the rail.
3. Avoid hammer blows. Hammer blows destroy a form's structural integrity. Maintain your wall quality and panel trade-in value by practicing good form maintenance or eliminating the threat of concrete buildup by purchasing forms with a gasket.
4. Store forms vertically. Reduce the risk of scratching and bumping by storing forms vertically in a rack.
5. Inspect your forms. Take a few moments to visually inspect your forms at each pour and perform a thorough inspection annually. Replace bushings, and check for wear and tear problems during the off-season. Promptly remove from service or repair any defective or broken equipment to help ensure safe and efficient operation.

Failure to follow these instructions may invalidate otherwise applicable warranties and may subject the user and others to serious bodily injury or property damage. Please contact Western Forms® with any questions concerning the safe use of Western Forms products or to obtain training for your employees.



THANK YOU FOR YOUR BUSINESS!
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EVALUATION OF USED EQUIPMENT

| Rate each of these conditions on a scale of 1-5 (with 5 being top condition) to help you determine an expected trade-in value. | Rating (1-5) | Comments |
|--|--------------|----------|
| Dents or Holes in Face Sheet | | |
| Line Weld Breakage | | |
| Perimeter Weld Breakage | | |
| Caved-In Hat Section | | |
| Bad or Missing Bushings | | |
| Straightness of Panels (1/8"-1/4") | | |
| Battered Siderails | | |
| Battered Endralls | | |
| Face Sheet Pulled Away | | |
| Excessive Concrete Buildup | | |
| Excessive Weight | | |

NOTE: The following will result in forms being treated as SCRAP: Forms with large holes in face sheet; forms with broken siderails; panels or fillers without endralls; 8' forms with loose face sheets on siderails at hat location 10' long at more than three locations; panels with extreme twist due to blowout.

| Manufacturer/Brand | Hole Pattern (6-12 or 8-8 only) | Face Sheet (Smooth, Verlox™ Brick or Brick Other) | Panel Height | Nominal or Full | Age of Equipment |
|--------------------|---------------------------------|---|--------------|-----------------|------------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Any forms that are evaluated as scrap will not be given full scrap value. If the decision is made by the customer and Used Forms Manager allowing Western Forms® to provide this service, the credit will be adjusted accordingly.

Quotes provided by Western Forms are valid for 30 days.

All trade-in equipment evaluated by Western Forms must arrive at Western Forms (in Kansas City, MO) in the same condition as when evaluated. Changes in equipment condition will result in a re-evaluation and new value quote upon arrival in Kansas City, MO.

THE SELLER IS RESPONSIBLE FOR FREIGHT

Seller Signature _____ Western Forms Representative Signature _____

EVALUATE YOUR FORMS

It's not enough to know what to look for; you have to do it! Western Forms recommends inspecting your forms on a regular basis. Make a note of any problem areas and keep a record of when and how they were fixed. Involve your crews to help stop potential damage before it begins. Train them on proper care & maintenance and keep them informed when damage occurs and how to prevent it. The Western Forms Used Forms Department can provide you with the same checklist it uses for form inspections (left) to help you keep track of your panel conditions and value.

WESTERN FORMS® USED FORMS

Take care of your forms and they can take care of you! Proper treatment helps maintain the value of your panels so you that can benefit even if you no longer need the equipment. If you're ready to trade in, trade up, or simply make some money off of your excess inventory, the Western Forms Used Forms Department is ready for you!

Western Forms accepts 6-12 and 8-8 forms in varying conditions and from a variety of form manufacturers. Prior to purchase, we perform an inspection of your equipment, looking closely at the items discussed in this brochure. Based on the evaluation of each maintenance item, we help you determine the fair market value of your forms.

Contact Western Forms

GENERAL INQUIRIES & NEW FORM SALES

Western Forms, Inc.
6200 Equitable Road
Kansas City, MO 64120

T: 800-821-3870
F: 816-241-6877

info@westernforms.com
www.westernforms.com

USED FORMS & REPAIR

Nelson Travis, Used Forms Manager
816-560-2778
ntravis@westernforms.com

All used forms sales and form repairs conducted on-site at Western Forms headquarters in Kansas City, MO.



DANGER!

IMPROPER USE OF FORMS AND FORMING ACCESSORIES CAN CAUSE SEVERE INJURY OR DEATH

IMPORTANT SAFETY NOTICE

Western Forms® products should be used only by experienced and properly trained workers and only for the expressed purposes for which they are intended. Proper supervision is required at all times. Western Forms products should always be used in accordance with product literature and specifications, applicable regulations, and industry standards.

Unauthorized product modifications can defeat important safety features of Western Forms products. Do not modify Western Forms products without the approval of Western Forms technical service personnel. Do not use products with loose, missing, or worn parts. Promptly replace worn equipment and accessories. Perform normal maintenance as necessary. Failure to follow these procedures can compromise product safety and void your warranty.

Improper use of Western Forms products can damage the products or cause injury to the persons using them. Improper use of the products includes walking on the forms, repeated hammer blows, filling the forms too rapidly, improperly stacking forms to create columns, and improper and unsupervised stripping techniques.

All products and procedures, unless otherwise noted, are intended for use with the Western Forms product system. Western Forms reserves the right to change product design at any time without notice.

If you have any questions concerning the use and handling of Western Forms products, please call 1-800-821-3870, contact us online at info@westernforms.com, or write us at Western Forms, Inc., 6200 Equitable Rd., Kansas City, MO 64120, USA.

WARRANTY

Western Forms warrants, except with respect to components of its products manufactured by others, that all products it manufactures, or which bear the Western Forms nameplate or monogram, will be free from defects in material and workmanship under normal use, service and proper operation at the date of shipment to purchaser. Purchaser's sole remedy under this warranty shall be limited to replacement of product, repair by Western Forms, or a refund of the amounts paid to Western Forms by purchaser of such products, at Western Forms' option. No warranty of any kind shall exist with respect to any products (or parts thereof); (a) which have been subject to misuse, negligence or accident or which have been tampered with, repaired, replaced or altered by anyone other than Western Forms; (b) where there has been a substitution of parts not manufactured or authorized by Western Forms; or (c) where the products have been subjected to conditions which vary materially from the conditions which such products are normally subjected to under existing industry practice.

Western Forms makes no warranties of any kind, expressed or implied, other than as herein expressly provided, and specifically disclaims all other warranties including the implied warranties of merchantability and of fitness for a particular purpose. Western Forms disclaims any obligation or liability for loss of time, cost or expense (including, without limitation, labor expense), inconvenience, commercial loss or any other direct, indirect consequential, special, or incidental damages.

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Western Forms, Inc.
6200 Equitable Road
Kansas City, MO 64120

