

# REPAIR REBUILD REPLACE



THE NEW YORK BLOWER COMPANY

(800) 208-7918 • [nyb.com](http://nyb.com)

**Centrifugal & Axial Fans**

**Fan Designs up to 1800°F**

**Abrasion & Corrosion-Resistant Alloys**

**Repair & Replacement Components  
for All Manufacturers' Designs**

**Energy Efficiency Upgrade Retrofits**



# Uncompromising Quality. Outstanding Dependability. Continuous Innovation.



Since 1889, The New York Blower Company has grown to become one of the most trusted names in air-moving equipment for precisely those reasons. Engineers, consultants

and plant operators recognize nyb as the leader in designing, maintaining and servicing industrial fans.

nyb has one of the most complete product portfolios in the world, ranging from pre-engineered to custom designed fans and blowers. Our selection software contains thousands of models, configurations and sizes of fans for the power, marine, nuclear and mining markets.

nyb's customer service, engineering and manufacturing departments work together to find the optimal solutions for complex systems. Our experience and knowledge also make nyb the go-to source for cost-effective fan repair, rebuild and upgrade services for any application. Regardless of the original manufacturer, nyb can restore fans into productive service. In some cases, efficiency rates exceed that of a replacement unit.

With over 600 employees, 200 representatives and licensees in 12 countries, you can depend on nyb for the technical expertise and engineering acumen to meet the specific requirements of even the most demanding industrial applications.

Industries, processes and technologies continue to evolve. For over 125 years, one company has evolved right along with them.

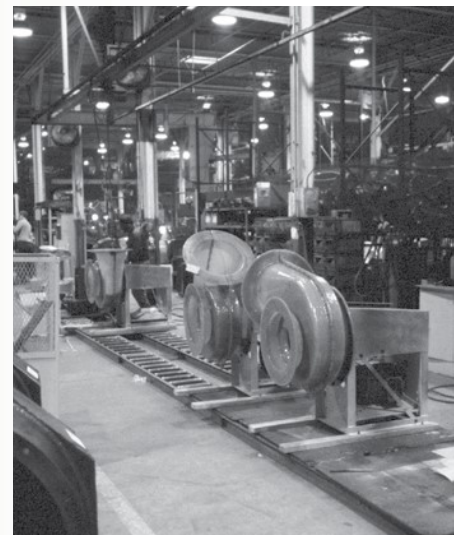
## ***The New York Blower Company***

### **PRODUCTS**

- Axial/Inline Fans
- Centrifugal Fans
- Heavy Industrial Fans
- Custom Designed Fans
- Plenums and Double Widths
- Fiberglass Reinforced Plastic Fans
- Process Heat or Plug Fans
- Packaged Fans
- Steam Coil Products
- Ventilator Products
- Fan Components
- Silencers/Flex Connectors

### **SERVICES**

- Expedited Production
- Preventative Maintenance
- On-Site Analysis/Repair
- Experienced Service Technicians
- New Lab – Expanded Testing
- Multiple Production Facilities





## Testing Capabilities

### Expanded Laboratory Completed in 2014

This new, state-of-the-art facility is ISO 9001 and AMCA certified for air and sound testing, and includes six airflow test chambers managing flows to 130,000 CFM, pressures to 100" WG, and horsepower to 500 bhp. Two reverberant sound rooms can operate at 230/460/575v with simultaneous induced draft and forced draft test capabilities.

#### Some services available are:

- Reverse engineering- using 3D scanners in the lab (8.2 ft range) and portable unit for field measurements
- Modal analysis
- Impact (bump) testing
- Balancing and vibration tests to a variety of international standards
- NDE weld analysis
- Wheel destruction/deformation testing
- Positive material identification/ verification (non-destructive)
- 2000°F burnout oven
- ASTM B117 salt fog chamber testing for corrosion
- CAD to coordinate verification of physical shapes (such as airfoil blades, fan inlet cones)
- Computational Fluid Dynamics (CFD)
- Prototype/product evaluation
- Finite Element Analysis (FEA)

### Mechanical Run Tests

The fan is run until bearing temperatures stabilize and then vibration readings are recorded. Bearing temperatures are recorded at 10 minute intervals during bearing temperature stabilization. Time intervals range from 1-4 hours for testing to be completed.



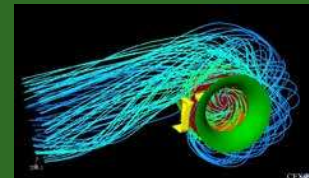
### Parametric Modeling

This technique can be used to analyze a fan's performance when original fan parameters are not available. Modeling is completed using information collected from the original fan, which can then be used to determine performance of a replacement fan.



### Computational Fluid Dynamics (CFD)

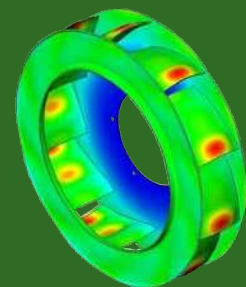
CFD testing is utilized to better visualize the air-flow within our fans. By analyzing this data, our engineering team has the ability to craft and design our components to provide the smoothest, most efficient air-flow possible under the desired specifications.



### Finite Element Analysis (FEA)

nyb in-house engineering design analysis of wheels or complete fan assemblies.

The program will calculate deflections due to external forces, corresponding stresses and predict natural frequencies. Shop "Bump" tests can be done to identify and verify actual resonance.



# Service Capabilities



## Experienced Technicians

nyb's experienced technicians offer a comprehensive range of services. Our Field Service Department can troubleshoot fans both in their current design system and independently at our lab. nyb uses state of the art equipment for in-field alignment, balancing and analysis. Our field service personnel have years of field training combined with specialized schooling in the latest techniques and can assist our customers with any manufacturer's fans.

# Balancing Capabilities

At nyb we perform a series of tests to ensure optimal wheel balance in each of our fans. This is necessary when fabricating fans with low levels of vibration. Vibration always has been a good indicator of how well a piece of equipment was designed, installed, and maintained. With computerized preventative maintenance programs, vibration can also be used as a precursor of future maintenance requirements. Fans are subject to vibration because they have a high ratio of rotating mass to total mass and operate at relatively high speeds.

Unlike most mechanical equipment, there are two major causes for vibration in fan equipment. These are aerodynamic, having to do with airflow, and mechanical, having to do with rotating components, fasteners, and structural support. Our engineering team has strict criteria regarding vibration levels that are tested and verified before any fan is delivered to ensure we give our customer the highest quality product possible. nyb balances all wheels to a minimum ISO G6.3 dynamic balance. In addition, nyb offers an optional tighter balance to G2.5 as well as G1.0 for some special applications, both complete with a certified balance report.



25" backward inclined wheel is being balanced using a mandrel, on our small dynamic balancer with a capacity up to 5,000 lb weight and 100" diameter.



103" radial blade wheel and shaft assembly with chromium carbide liners, A514 steel and chromium construction. It is shown being balanced on our large dynamic balancer with a capacity up to 20,000 lb weight and 140" diameter.

# Repair

## Reduce Downtime. Expedite Production.

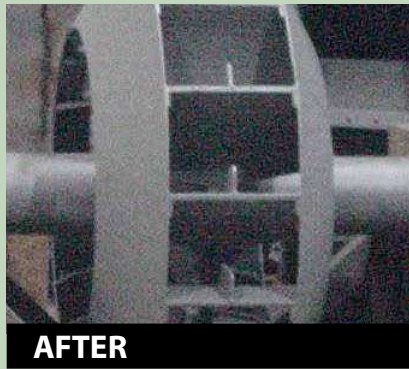
If your equipment fails you need an experienced company to help you determine the quickest and most effective solution. That's why nyb is the logical choice when equipment shows excessive wear, corrosion, abrasion or unbalance, or simply isn't up to current production demands. With over a century's experience with rebuild and repair jobs, our highly experienced engineers, technicians and Field Service Department can assess and analyze any field issues. Fan assemblies can be measured and tested in the field, or expedited to nyb's AMCA-accredited lab for a rapid diagnosis of air, sound and vibration problems.



(Above) This is an induced draft fan located on dirty side of baghouse exhausting blast furnace.



**BEFORE**



**AFTER**

(Left) 82" diameter wheel with chromium carbide blade liners. Before picture is a worn out wheel. After picture is a wheel made by nyb after measuring a customer supplied wheel and shaft.



**BEFORE**



**AFTER**

(Left) Features a repair application in the steel industry. 54" radial tip wheel on a "coke pushing" car before scrubber. Wheel fabricated from Ferralium and 316 SST, operating at 1800 RPM. nyb measured the before wheel pictured and built a replacement wheel using all AWS D14.6 certified welders.



**BEFORE**



**AFTER**

(Left) Pictured is a high temperature axial flow fan used in the carbon industry. The before picture shows outer housing separation caused by excessive temperatures. The after picture is a modified nyb plug fan built from measurements of competitors' plug design.

# Rebuild

## Upgrade Equipment to Increase Fan Performance

As fans operate, wear and damage, debris buildup and imbalances actually offer vital insights into your specific operating environments. That “evidence” can be leveraged by our engineers to offer design and material modifications or enhancements that will actually improve fan performance and extend fan life. Whether erosion, corrosion, temperature extremes or other factors are the cause, rebuilds by nyb really can be “better than new.” And all this, while adhering to the existing system parameters.

# Replace

## Upgraded Design Enhancements

- Backspin devices
- Special guards
- Motors and drives including steam turbines, hydraulic motors and special couplings
- Modified inspection doors with a range of securing hardware choices
- Special motor pedestal platforms
- Custom wheel removal housing splits
- nyb-designed and built manual/electrical/pneumatically controlled dampers, including radial inlet, louvered outlet, guillotine/isolation (AVD) and vortex dampers

Some benefits of upgrading equipment include:

- Maximized ROI for OEM equipment life cycle costs
- “Better than new” reliability
- Improved efficiency/energy savings
- Rapid adaptation for new production demands

nyb can bring new efficiency and reliability to any application with drives and flow control devices including:

- Diesel, electric and hydraulic motors of every type and size
- Motor controllers, disconnects and starters
- Variable speed drives
- Magnetic couplings
- Steam turbines



### Replacement Arrangement #1 Fan

- Fabricated paddle wheel continuously welded from Inco800H
- 309 SST shaft with guard
- Dynamically balanced wheel/shaft assembly to G2.5 standards
- 15 HP v-belt drive
- Carbon steel housing with high temperature primer paint

# Industry Focus - Cement and Lime

## Replacement Housing

nyb used the customer's fan drawings and field measurements to build replacement housing and inlet box for a competitor's fan. nyb upgraded the design to include an A514 scroll and cheek liners. Housing was installed without the need for field modifications.



## Replacement Wheel and Shaft Assembly

40" paddle wheel and shaft assembly – A514 construction with 1/4" on 1/4" chromium carbide liners. Duplicating customer supplied wheel but to nyb design. nyb provided a complete replacement due to the heavy wear and overall poor condition of this assembly.

## Replacement Wheel

This replacement was for an Induced draft fan located on dirty side of baghouse exhausting blast furnace. The wheels below have chromium carbide blade liners. The wheels were made by nyb after measuring a customer supplied wheel and shaft. Pictures show units primed, dynamically balanced and ready to ship.



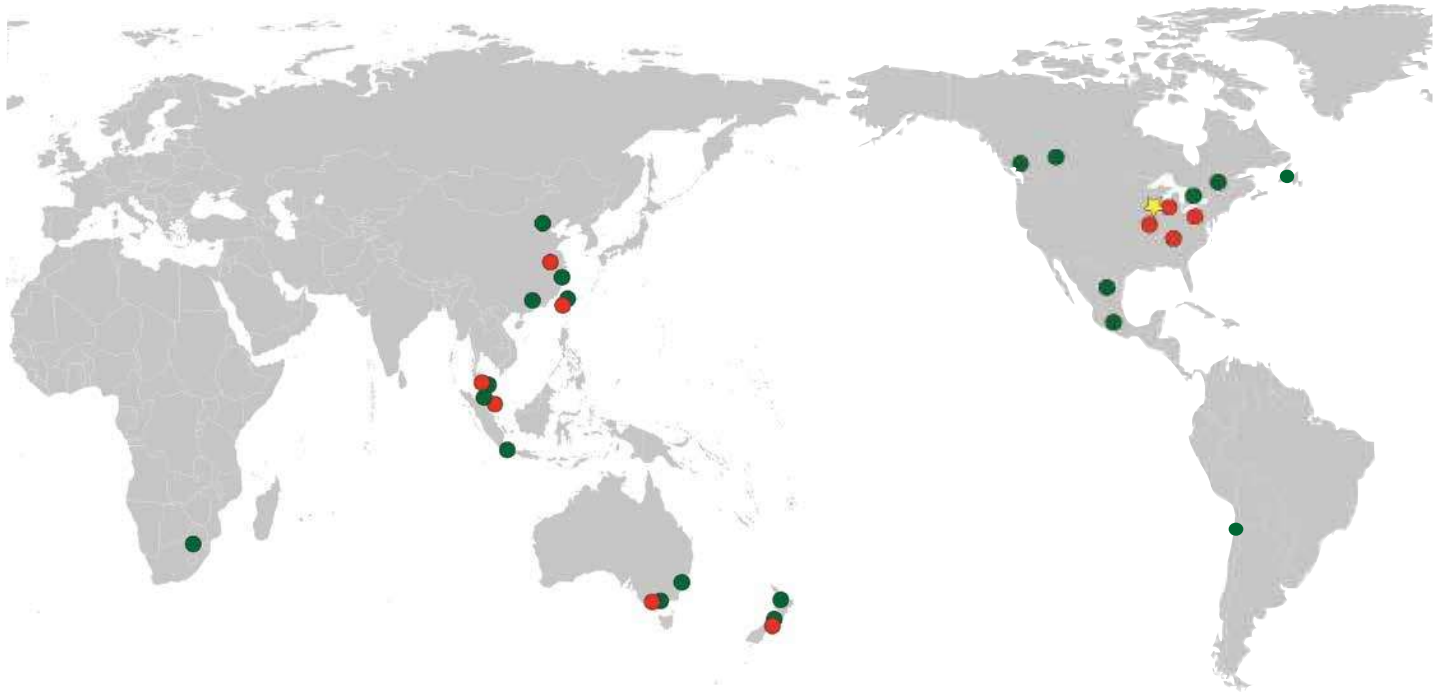
82" radial blade wheel and shaft assembly used on a rotary kiln baghouse in the lime industry.



This wheel and shaft assembly was a component replacement in a competitor's fan assembly.

# Continuing to Expand Locations, Products and Services Worldwide

By expanding our manufacturing facilities and adding representatives from around the world, we are better able to serve our customers domestically and internationally. We now have 560,000 ft<sup>2</sup> manufacturing space in the United States. In addition, we own the largest indoor AMCA accredited laboratory in North America, which allows us to confidently and accurately test and rate our products for performance, efficiency, and sound.



## ● Manufacturing Locations

### United States

Effingham, IL  
La Porte, IN  
Leitchfield, KY  
New Castle, PA

**Australia** - Melbourne

**China** - Suqian

**Malaysia** - Johor

**Singapore**

**Taiwan**

**New Zealand** - Wellington

## ★ Corporate Headquarters

Willowbrook, IL



Member of Air Movement and Control Association

## ● Sales Representative Offices

**United States** - Over 50 offices (Not shown on map)

### Canada

Calgary  
Montreal  
Saint John  
Toronto  
Vancouver

### Mexico

Mexico City  
Monterrey

### Australia

Melbourne  
Sydney

### China

Beijing  
Guangzhou  
Shanghai

### Chile

Huechuraba

### Indonesia

Jakarta

### Malaysia

Johor

### New Zealand

Auckland  
Wellington

### Philippines

Manila

### Singapore

### South Africa

Johannesburg

### Taiwan

Taipei



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