



Zippers and so much more...

ADAPTING THROUGH INNOVATION

ALEX GREGORY
YKK CORPORATION OF AMERICA

Spring 2003

From an anonymous Georgia Tech student's blog;
today's "take away":

"If that guy can do it, anybody
can!"



FILM COLOR 12 73

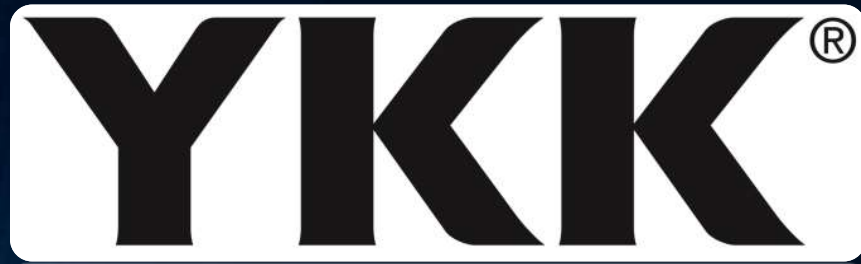
— FUJICOLOR 100 35







Two Great Brands

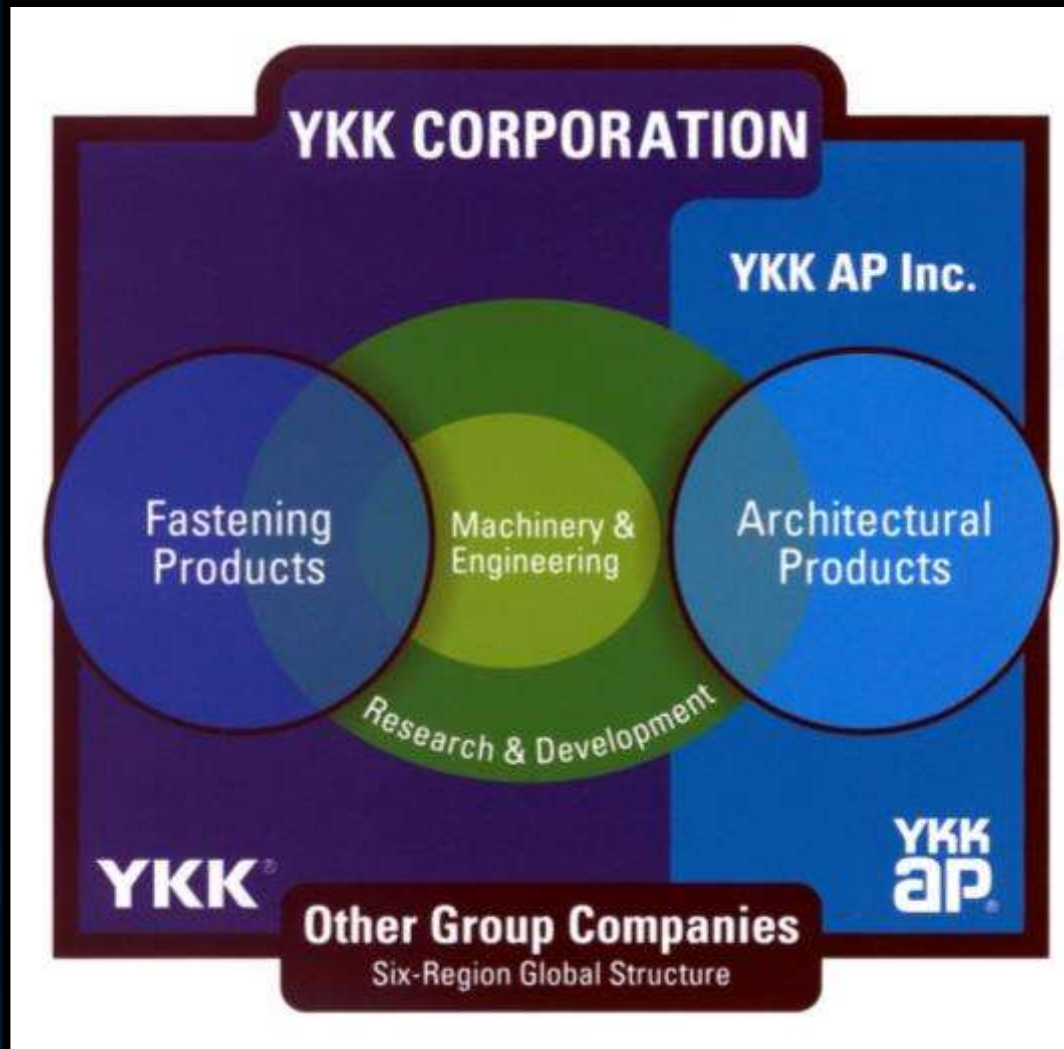


FASTENERS FOR SEWN
PRODUCTS INDUSTRIES



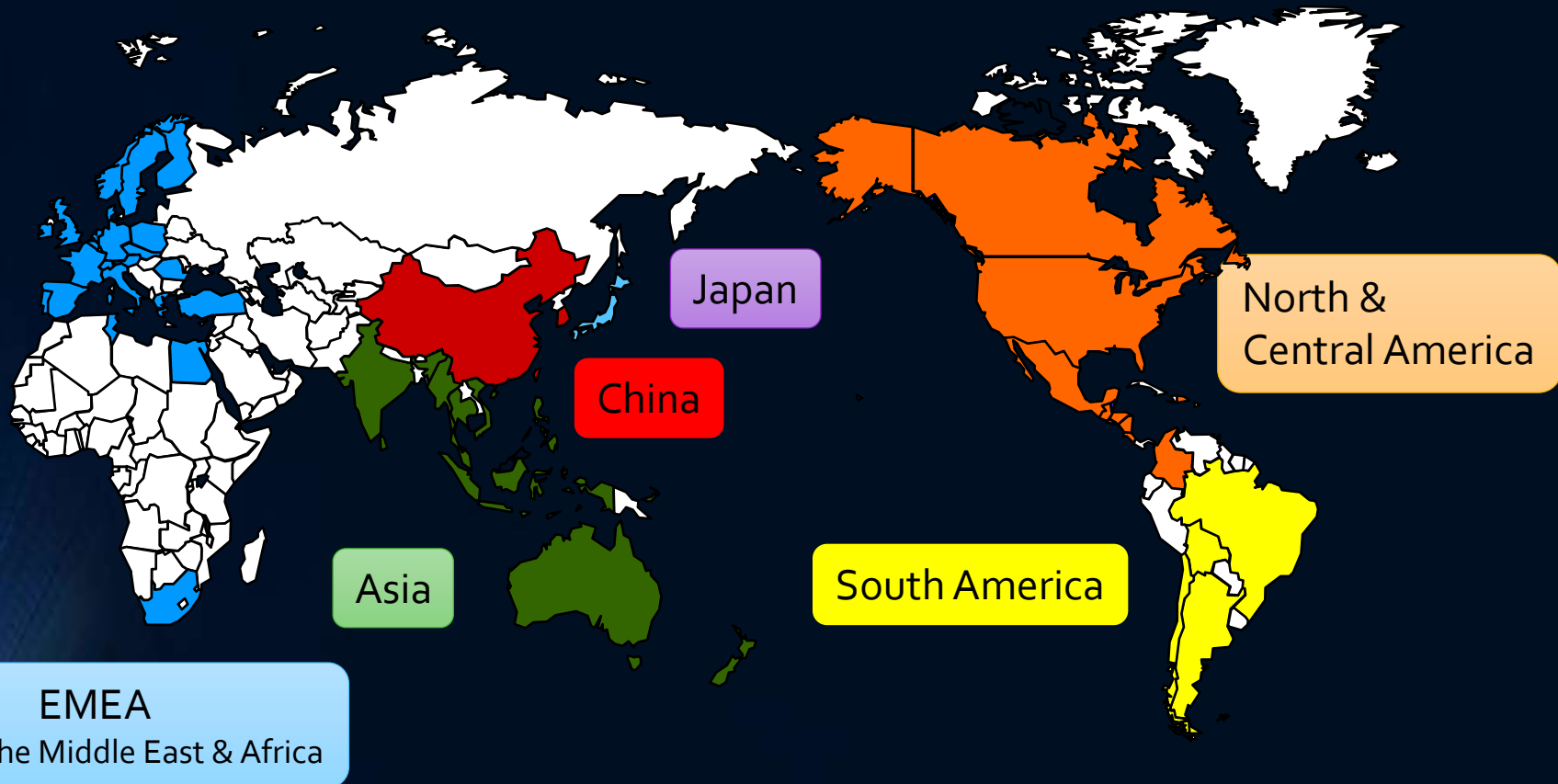
ARCHITECTURAL
PRODUCTS FOR
COMMERCIAL AND
RESIDENTIAL BUILDINGS

Three Business Groups



Global YKK

108 companies; 570 locations; 71 countries



- Founded in Japan in 1934 by Tadao Yoshida; still privately owned
- 40,708 employees (Japan: 17,229; Overseas: 23,479)
- Annual global sales approx. \$6 billion (60% architectural products)

YKK North and Central America Group

12 companies; 8 countries



YKK in the United States

1960

- Yoshida International Inc. established in Long Island City, NY

1970

- YKK sales office in Atlanta opened

1974

- Fastening manufacturing center opened (Macon) (54 acres)

1979

- Additional 250 acres purchased in Macon

1987

- YKK Corporation of America established

1991

- YKK AP America Inc. established

1992

- Architectural Products manufacturing center opened (Dublin)

YKK in Georgia

3 companies headquartered in Cobb County:

- YKK Corporation of America
- YKK (U.S.A.) Inc.
- YKK AP America Inc.



YKK (U.S.A.) Inc. Snap and Button Products Lawrenceburg, Kentucky



YKK El Salvador S.A. de C.V. San Juan Opico, La Libertad



YKK Honduras S.A. San Pedro Sula, Cortes



YKK (U.S.A.) Inc. Anaheim, California



YKK Canada Inc. Montreal, Quebec



Jen Colombia Medellin, Antioquia



Tape Craft Corporation Oxford, Alabama



Continuous improvement
and pride in our work...
It's the YKK way!



YKK Philosophy



Management Principle



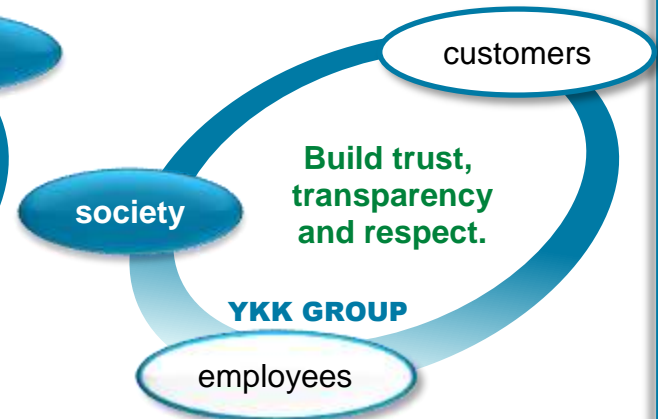
CYCLE OF GOODNESS™

“No one prospers without rendering benefit to others.”



Seeking corporate value of higher significance, YKK will pursue innovative quality in the seven key areas shown above.

Core Values



Commitment to the Environment

YKK Group Environmental Pledge

It is recognized today as being a most important duty for all humankind that we preserve the abundantly endowed global environment and that we transfer it to the next generation in a sound condition. The YKK Group proclaims that it will address and promote “harmony with the environment” as the highest priority of its business activities.

September 20, 1994

Fastening



- NATULON® Chemically Recycled fastener
- NATULON® Material Recycled fastener
- Organic cotton fasteners
- VOC (Volatile Organic Compounds) treatment machinery to help reduce VOC emission levels
- Conformity to wastewater treatment standards
- Industrial wastewater recycling
- Quick Dyeing – to reduce the amount of steam used for dyeing by 25% and wastewater by 50%

YKK Fastening Macon

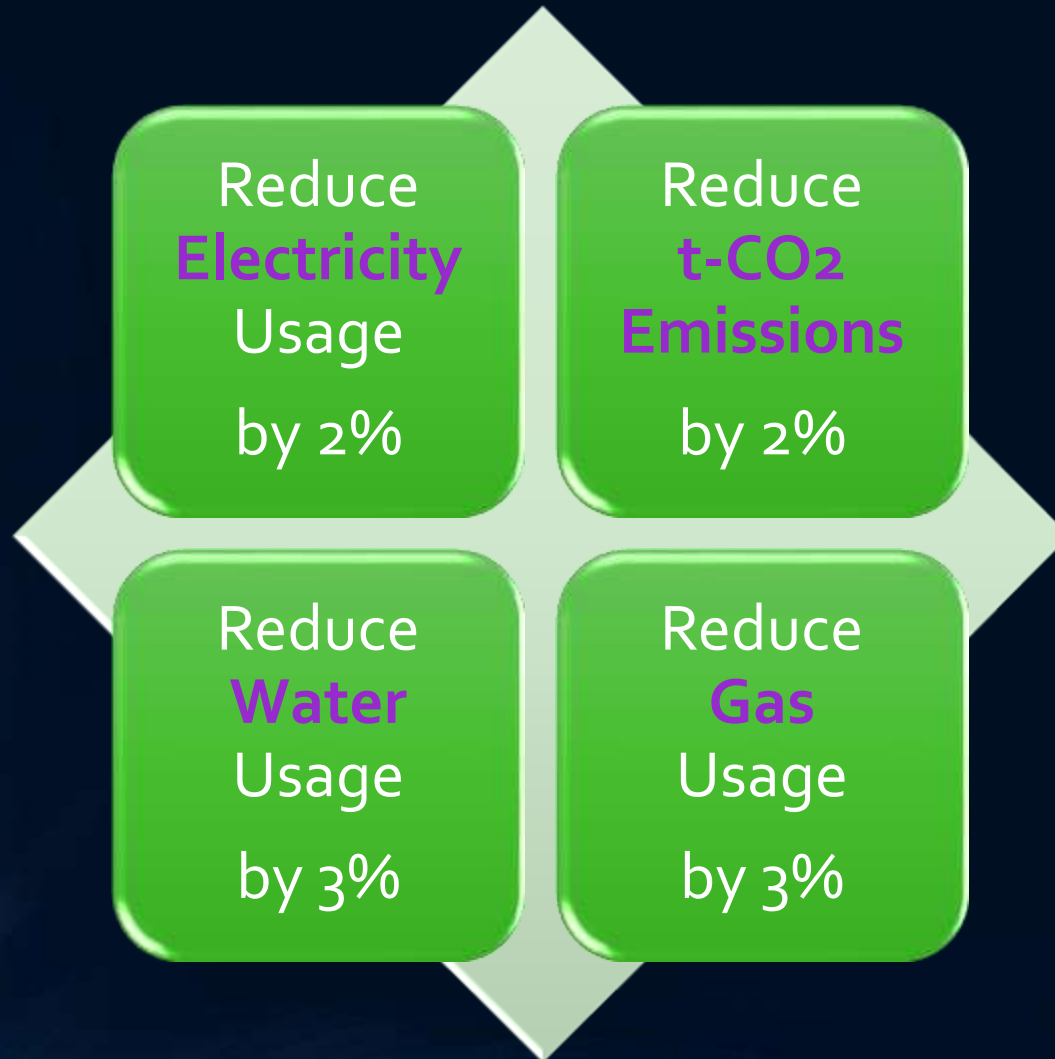
YKK Fastening's U.S. manufacturing plant in Macon, Georgia, is **ISO 14001 certified** and has a **73% recycling rate**.

The plant

- recycles **90%** of brass waste on-site, in addition special recycling programs with key customers.
- through recycling programs **2.8MM lbs.** of waste diverted from landfill in 2013.
- innovative solutions have led to a **25% (40M lbs.)** reduction in hazardous waste generation.
- uses state-of-the art techniques for waste water treatment



YKK Macon Environmental Objectives (2014)



YKK AP

YKK AP's U.S. manufacturing plant in Dublin, Georgia, is ISO 14001 certified and has a 73% recycling rate.

The plant

- recycles 100% of aluminum waste on-site
- has reduced the amount of other waste materials sent to the landfill by 40%
- uses regenerative burners to save 50% on the melting/casting operation's fuel consumption
- captures and burns 93% of all solvent emissions from the paint line
- uses state-of-the-art techniques for waste water treatment



Giving Back to Our Community



Ocmulgee Alive Cleanup - Rotary Park



Tape Craft Gives to Toys for Tots



YKK El Salvador Supports School Music Program



YKK USA Macon Gives to the United Way



YKK USA Snap & Button Products Donates Benches to Turner Trail



YKK Mexico donates health clinic to San Jose de Maranon, Mexico



YKK donates Japanese garden to The Carter Center



YKK donates Macon Cherry Blossom Festival Headquarters Building (1990)



YKK supports Macon-Kurobe Sister City Relationship



YKK supports Dublin-Osaki Sister City Relationship

YKK Tree Planting Day

JUNE 5



Alabama

YKK Canada Inc.



Canada



Macon, GA



Marietta, GA

YKK (U.S.A.) Inc. Named 2013 Macon "Industry of the Year"

October 29, 2013

2013 Business & Industry Award Winner
"Industry of the Year"

YKK®

Presented by

GREATER
MACON
CHAMBER OF COMMERCE

MACON
Macon Economic Development Corporation



YKK®

FASTENING PRODUCTS

Fastening Manufacturing Center Macon, GA

OCMULGEE PARK
54 ACRES



CHESTNEY PARK
A "FACTORY IN A FOREST"
250 ACRES



YKK Canada Inc. Montreal, Quebec



Tape Craft Corporation Oxford, Alabama



YKK Mexicana S.A. de C.V. Irapuato, Guanajuato

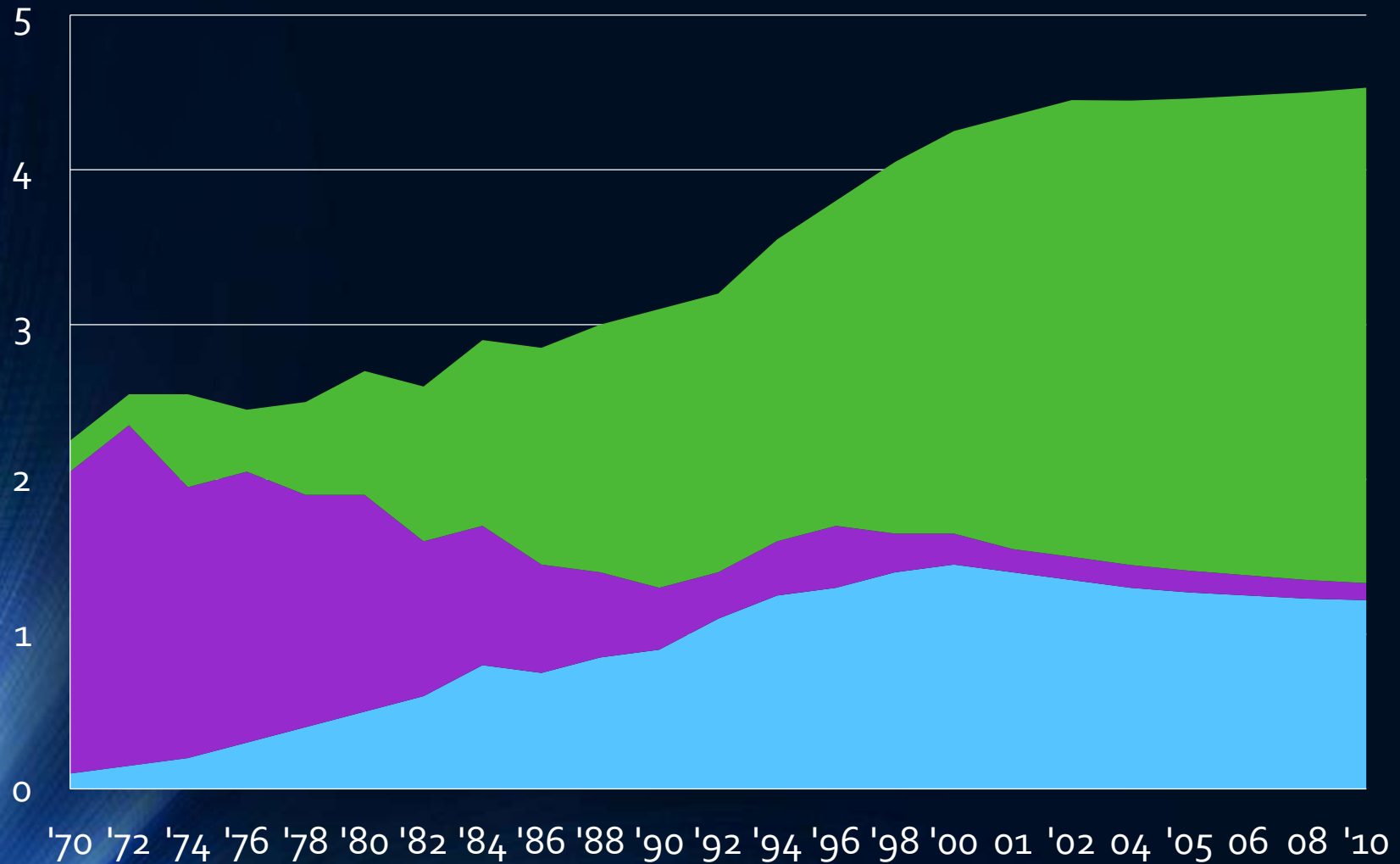


Challenges

Total U.S. Zipper Consumption Market

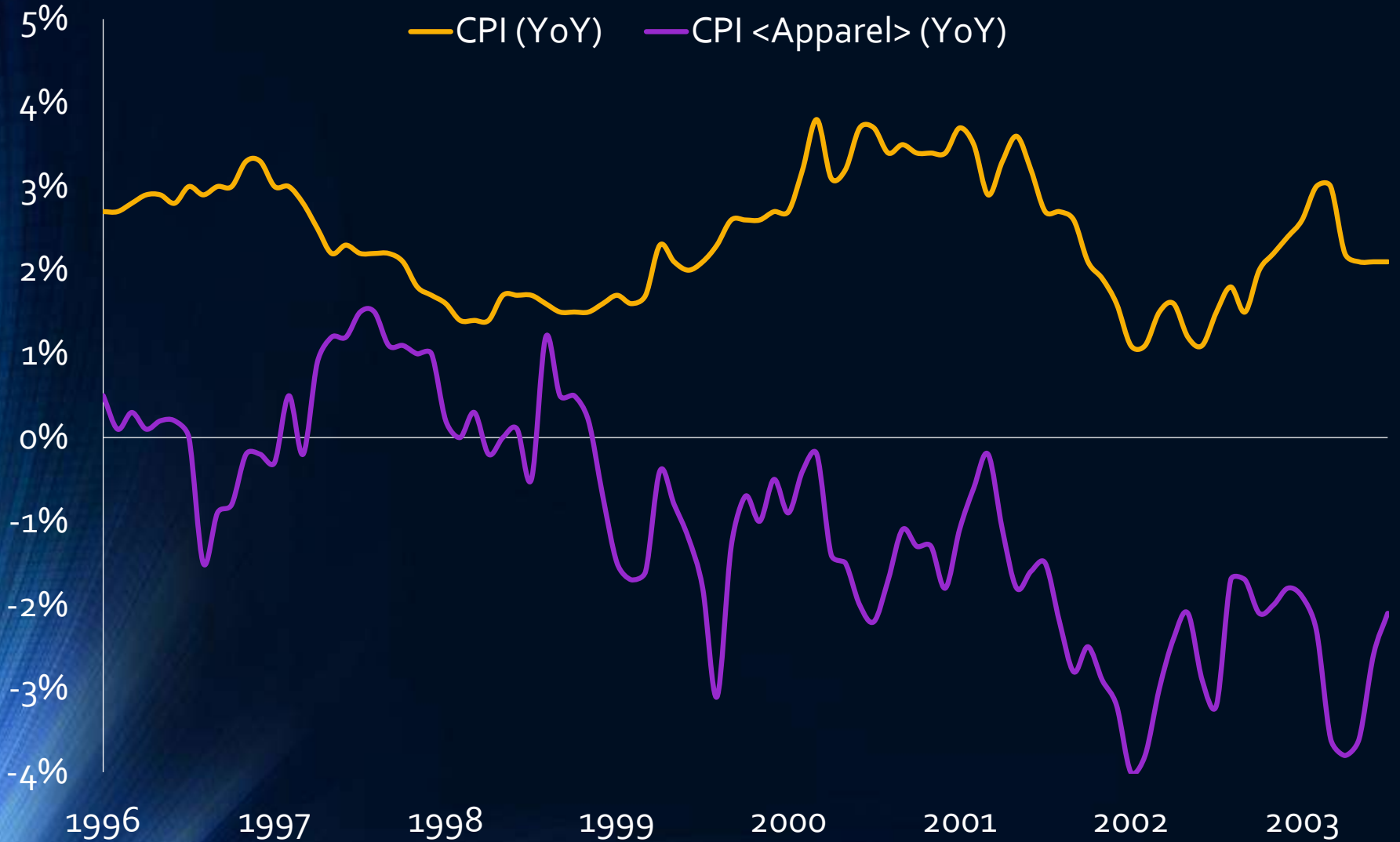
■ YKK ■ Zippers sold by competitors ■ Imported products with zippers

Billions pcs



Apparel Price Deflation

Source: Department of Labor



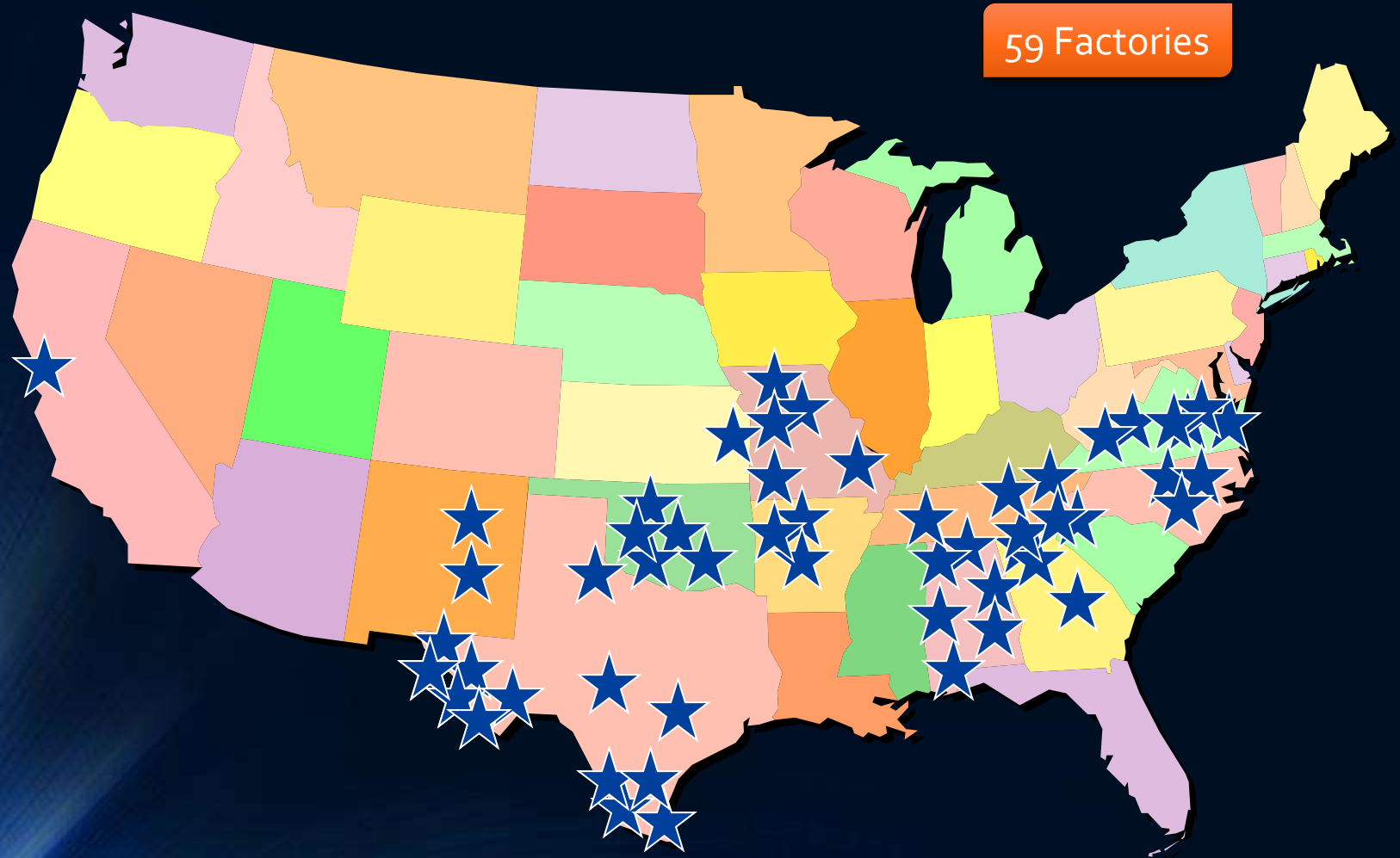
Wage Comparison in Apparel Industry

Source: The Woolmark Company



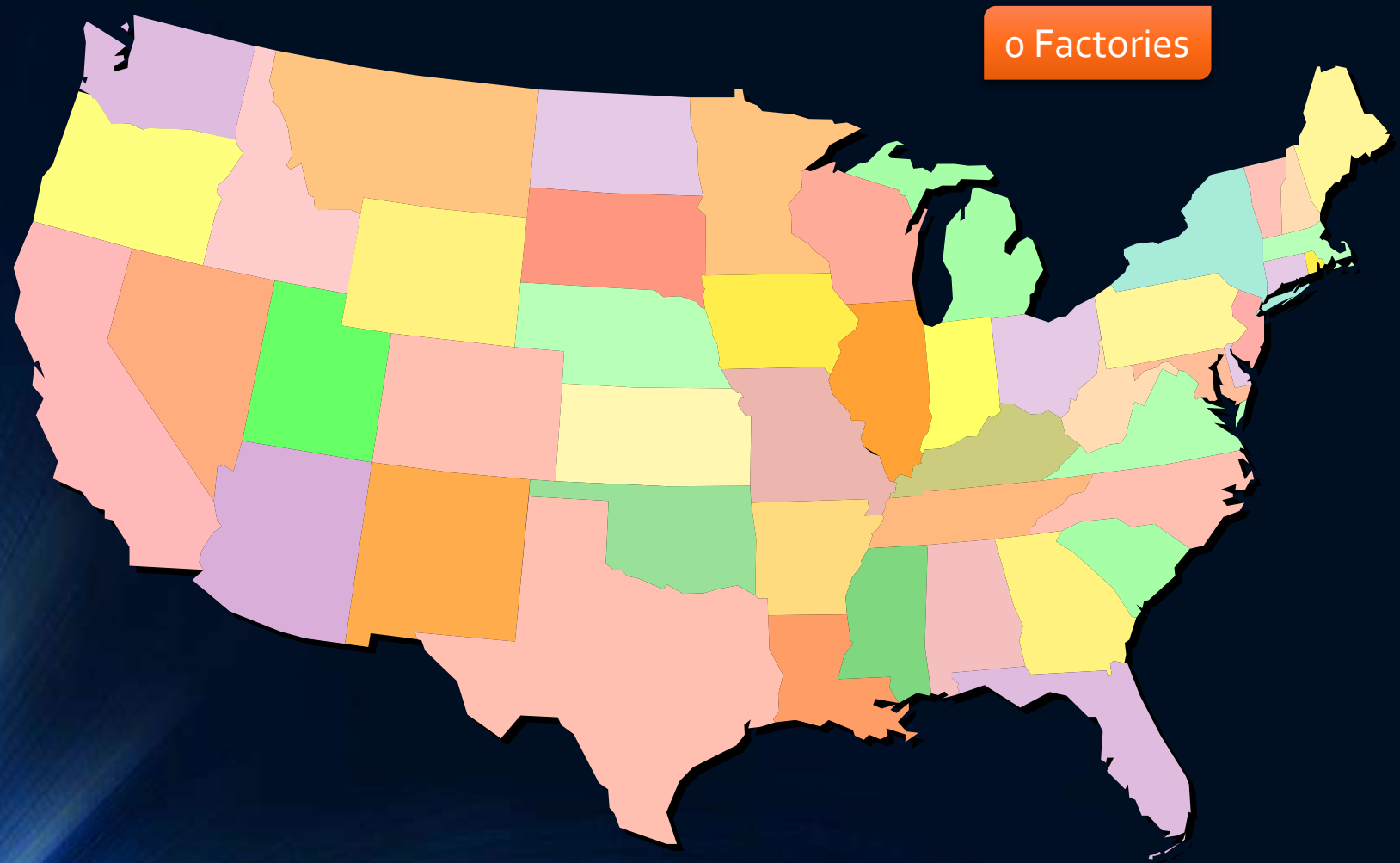
Late 1990s

Brand Name Jeans Factory Locations



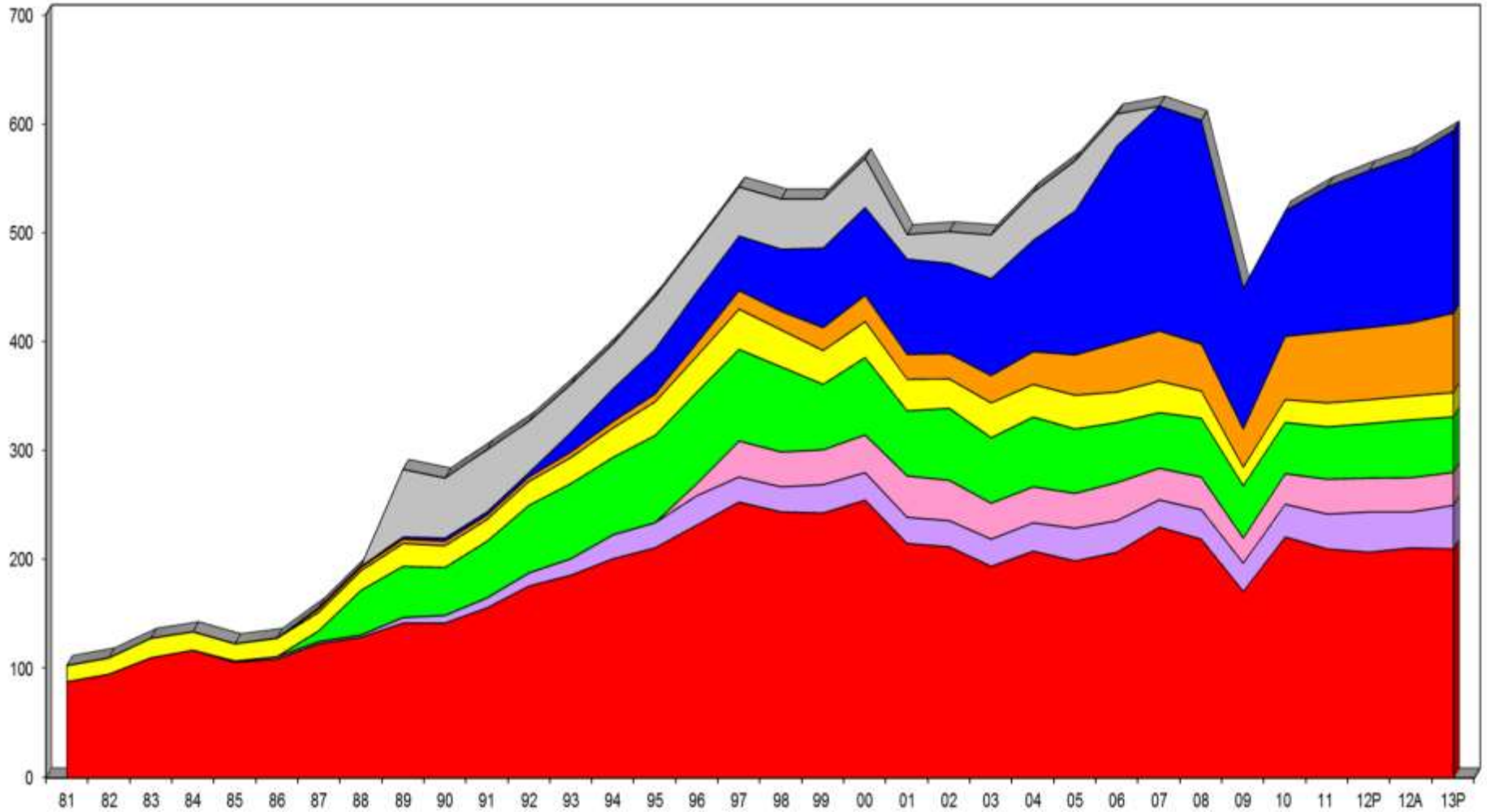
2006

Brand Name Jeans Factory Locations



Growth through Diversification & Innovation

YKK North & Central America Group Sales History



Value-added products with industry specific applications

Jeans/Pants



Outdoor



Government



Safety



Automotive



Medical



Product Types: YKK ZIPPERS



VISLON® Zipper



Coil Zipper



Metal Zipper



DS
Semi-Automatic lock
Unlocks when the zipper pull is raised go



GS6
Semi-Automatic lock
Semi-auto for Jeans.
Made of brass.



DA8
Automatic lock
Won't open unless you pull the zipper pull.



DFW
Non-lock
No locking mechanism.
For pockets, bags, etc.



DU
Reversible Automatic
Auto lock.



CA8
Automatic lock
Auto-lock. You can clip on your own puller.



CF
Non-lock
Non-lock. You can clip on your own puller.



ZA
Automatic lock
Auto-lock. You can clip on your own puller.



ZF
Non-lock
Non-lock. You can clip on your own puller.



DFNT
Non-lock
Non-lock. You can attach your own puller by closing the crown.

Product Types

HOOK & LOOP



Hook



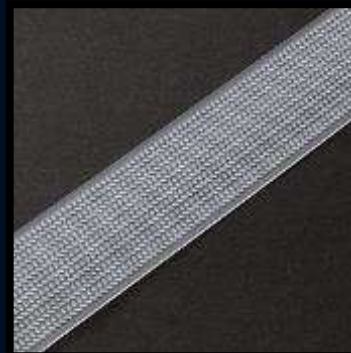
Woven



Knit



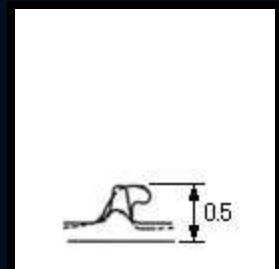
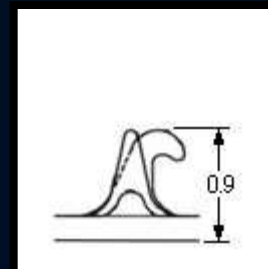
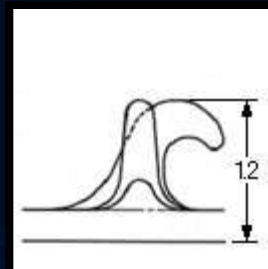
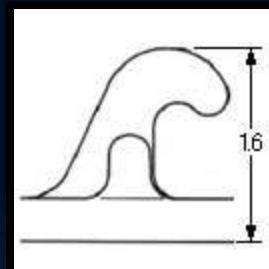
Loop



POWERHOOK®



Injection



Product Types

WEBBING



Product Types

PLASTIC HARDWARE



Buckle



Strap Adjuster



Cord stopper &
Cord end



D-ring/Tri-ring



Loop



Others



Snap Hook

Product Types

SNAP & BUTTON



Jeans Button



Rivet & Burr



Snap



Snapet®



Hook and Eye

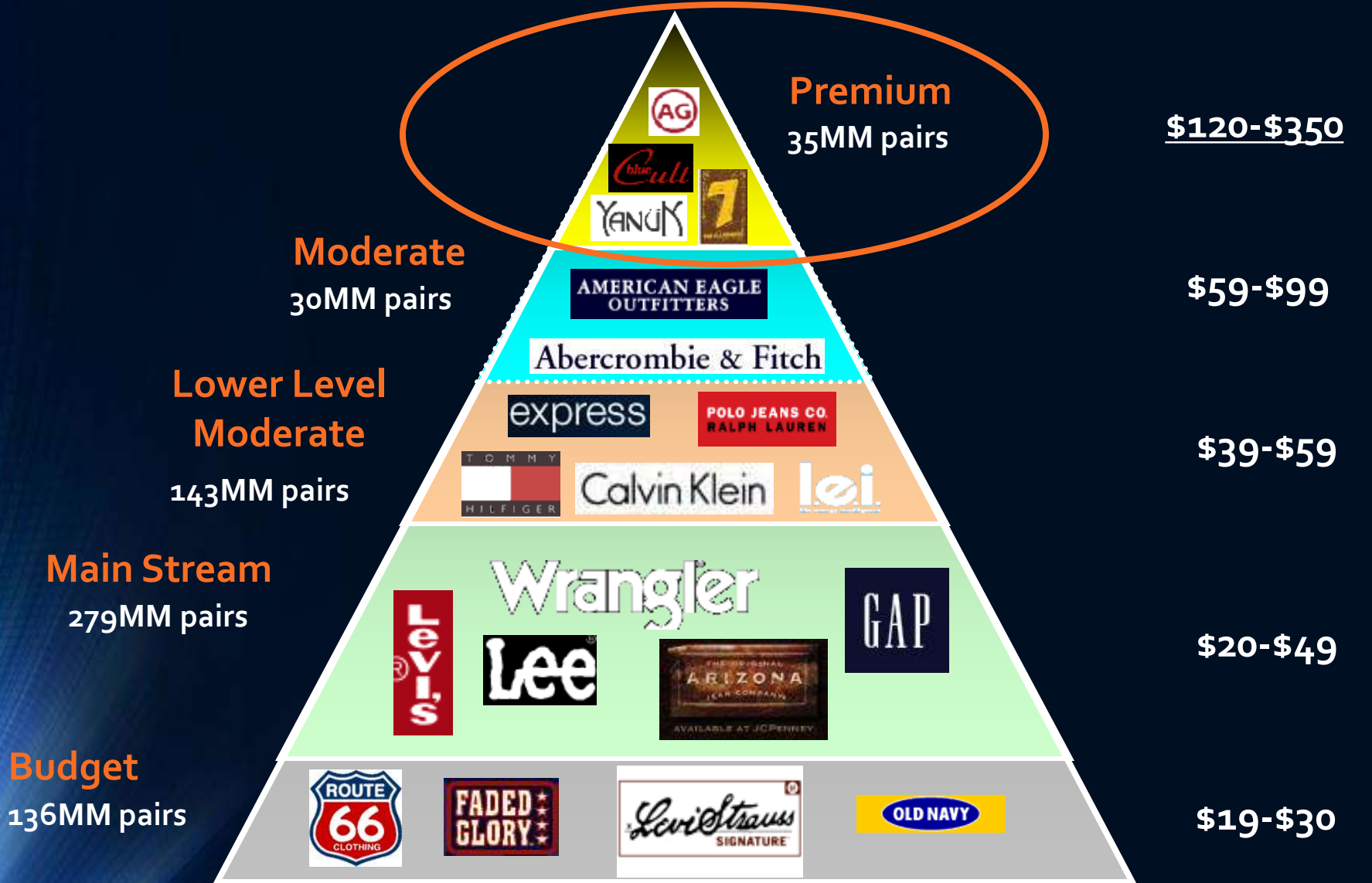


SNAD®



Attaching
Machine

US Total Jeans Market by Segment



Retail Price

Jeans



Textured Finish
To Mass Brands with
Higher Price



Big Size Button & Burr

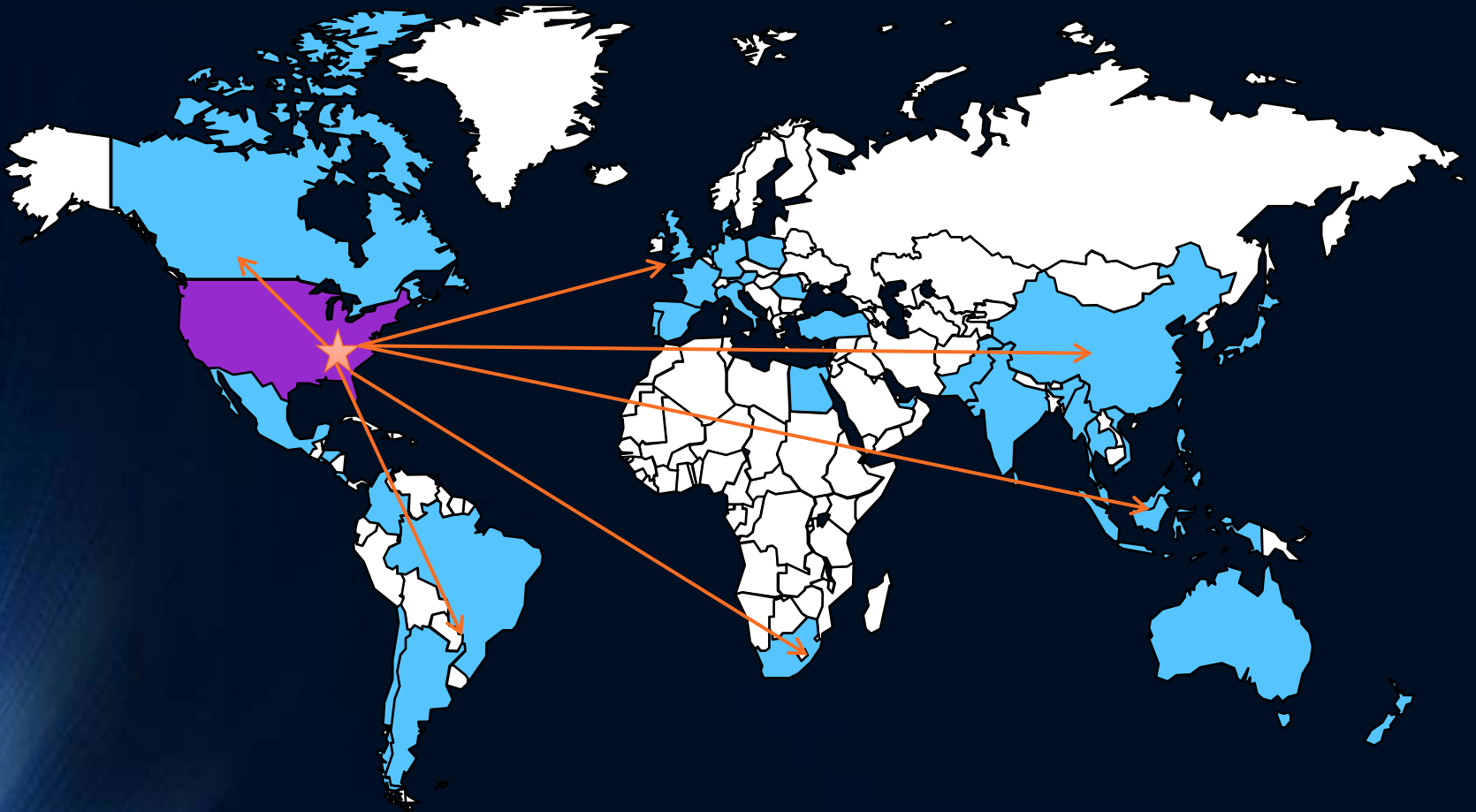


Real Patina Finish



Deformed Button & Burr

YKK's Exports from the United States

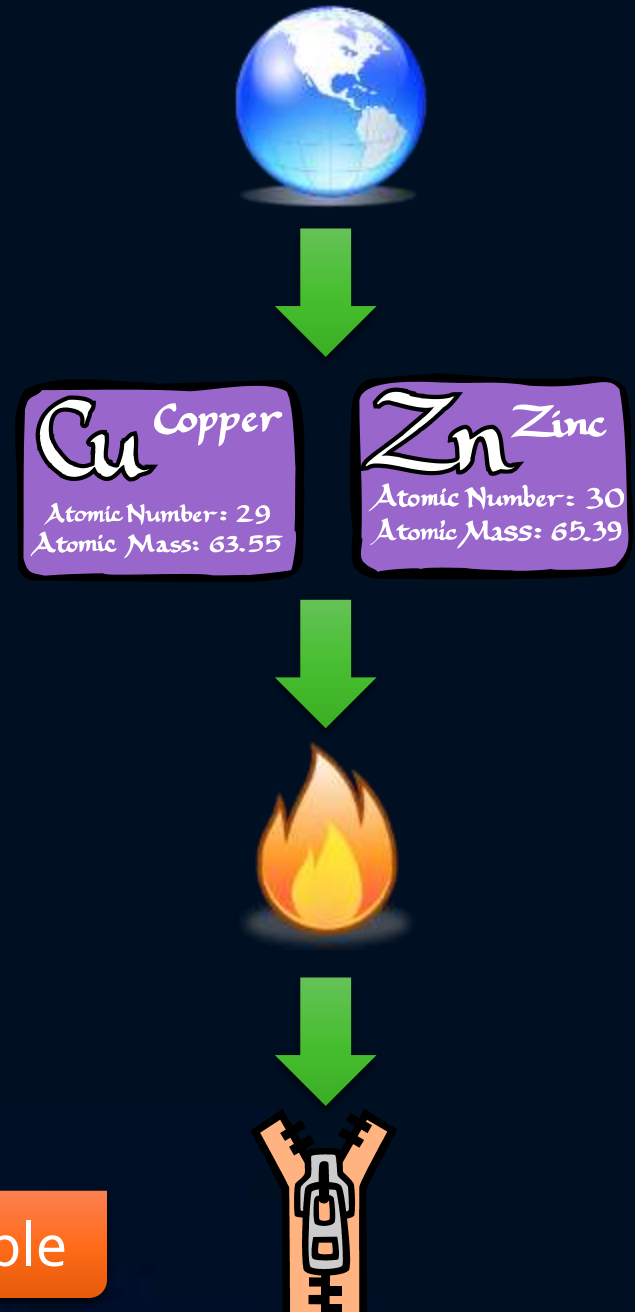


YKK in the U.S. exports products to
57 companies in 40 countries

Vertically Integrated Production

1. Select the purest raw materials
2. Melt pure copper and zinc in a huge furnace and cast. Out comes a narrow ribbon of molten 99.98% pure brass
3. Cool the brass
4. Stamp into element, slider, and stops
5. Join to the tape

To get as close to PERFECTION as possible



Brass Wire Exports

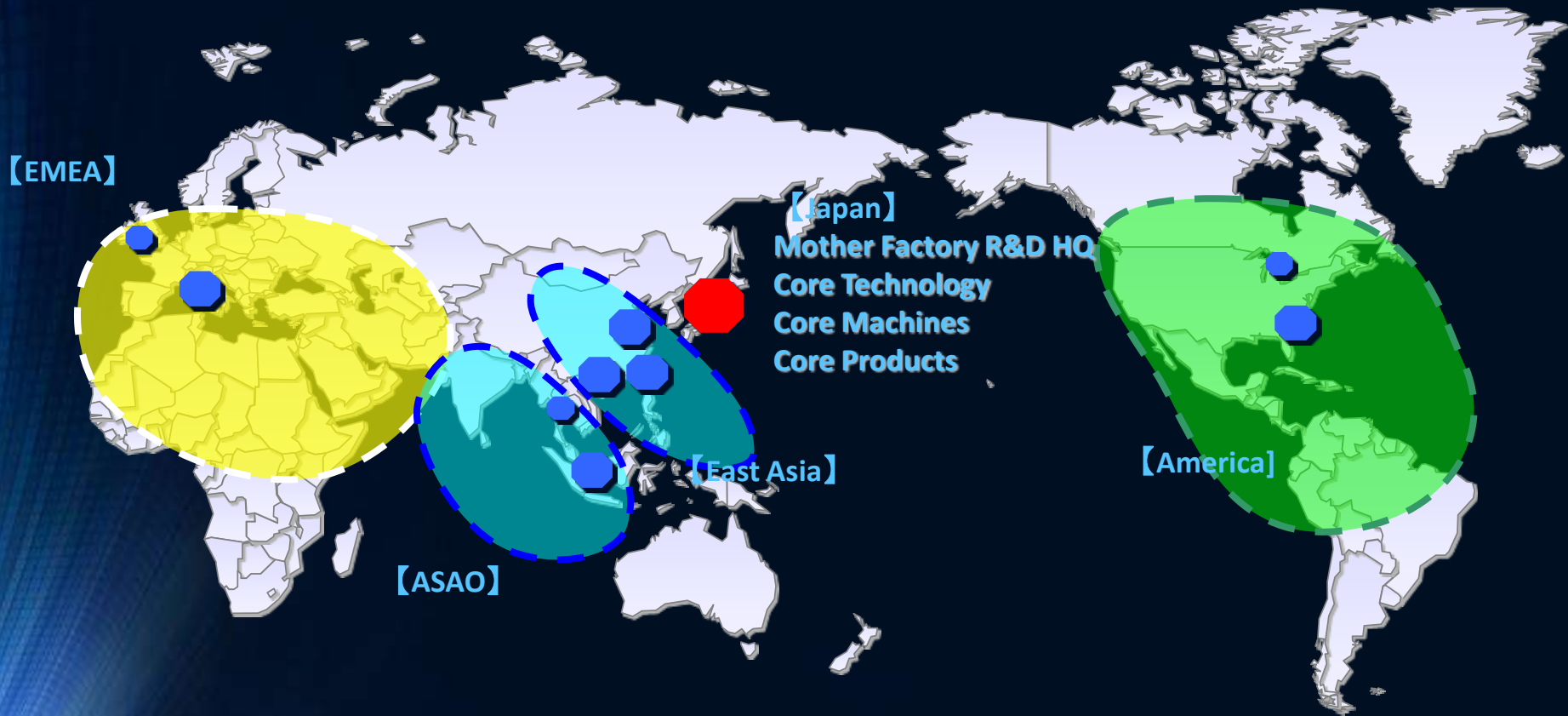
YKK Macon exports to 12 countries (14 factories)





Innovation

YKK Worldwide R&D Network



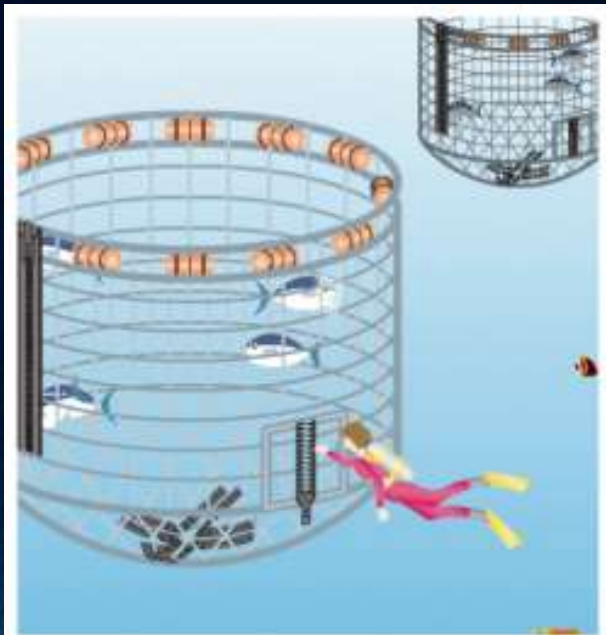
Rockets



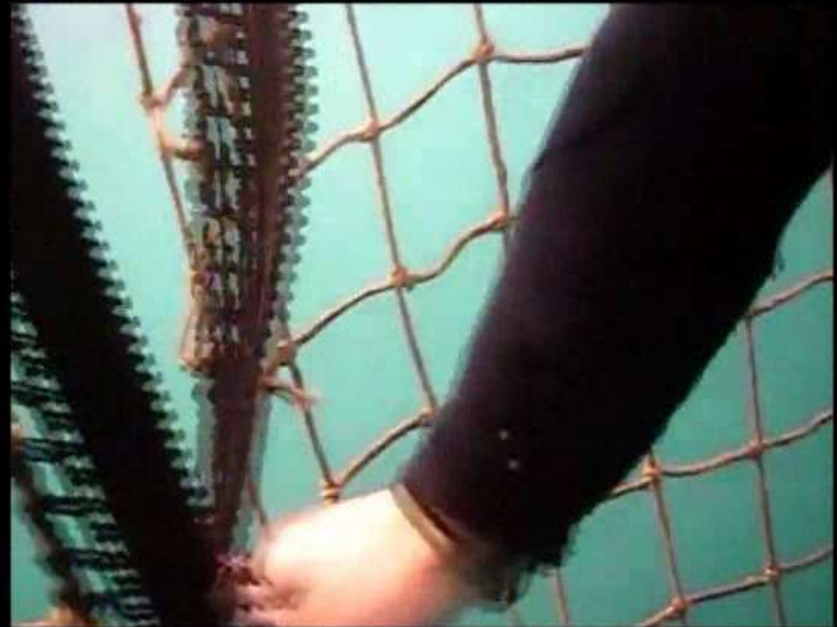
This rocket's thermal curtain is connected using a YKK zipper. The thermal curtain protects the rocket from the high heat generated upon launch. At first, the thermal curtain was connected by a cord, but it has been replaced by a zipper because a zipper makes it more convenient to open and close the thermal curtain when checking and repairing the rocket. And thus, YKK's special flameproof zipper heads to space.



Fishnet



Zipper used for fishnet



Firefighting suits

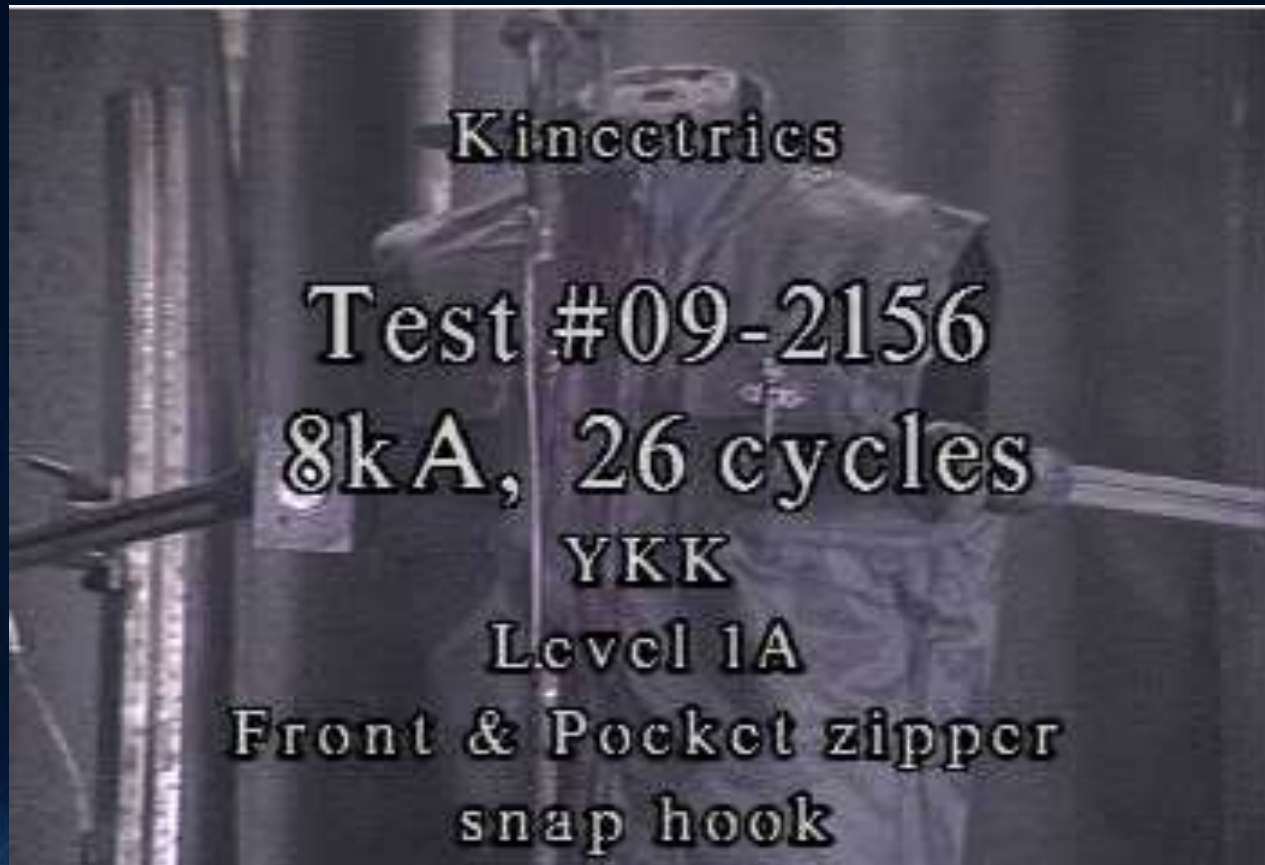


Since firefighters must work very close to fire, YKK's flame resistant zippers are used in firefighting suits. The tape on these zippers are on the outer side of the element, and engage with each other in such a way as to prevent burning and melting. Easy to zip and unzip and resistant to heat, YKK's flame resistant zipper works well for firefighters.

Fireproof zipper test – standard zipper



Fireproof zipper test – Nomex zipper



Diving Suits



Since you can't always scuba dive in a warm ocean, dry suits allow you to scuba dive during the winter and when the water is cold. When you wear a dry suit, you can dive in cold water, and it will not penetrate the suit. A zipper will make the suit easier to put on and take off. YKK's waterproof zipper is used in dry suits.

QUICKBURST® Inflatable Collar for Pilot Suits



QUICKBURST® Zipper



Chemical and Biological Resistant Zipper Development



TAPE:

Proprietary Thermoplastic Coating

TEETH:

Polymeric Material

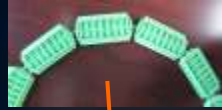
Technical Specifications

- ✓ Air tight
- ✓ Chemical resistant
- ✓ Easily opened
- ✓ High crosswise strength
- ✓ Lightweight and highly flexible



Automotive

QUICKFIT® and QUICKFIT® Flex



3CF Zipper



Webbing and Straps



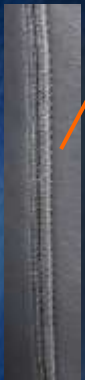
Visor Tether Cord



Hook and Loop



5CI Zipper

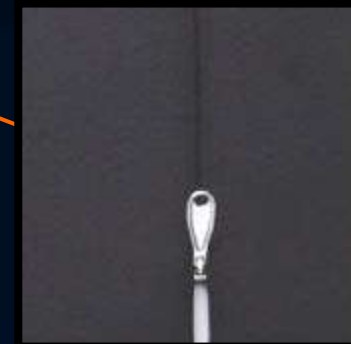


ISOFIX Button

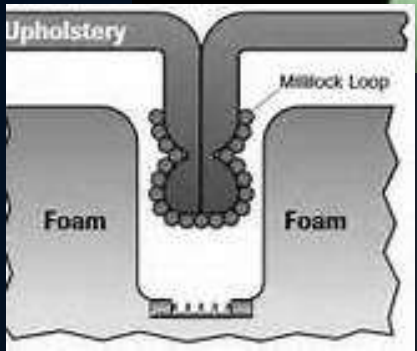


Tie Down Cord

45ECH CONCEAL®



Auto Seating Applications for QUICKFIT® Extruded Hook



Tooling Mold



Trench with Magnets

Foam Cushion



Trim assembly



Seat Cover

CONCEAL[®] 5CH Fasteners for Auto Interiors



Current Back Panel Designs



New Back Panel with 5CH Zipper



Estimated Seat Cost Savings = 50%
Estimated Seat Weight Savings = 2.5 lbs

Some brands that use CONCEAL[®] 5CH Fasteners



Ford Fusion



Ford F-250



Chrysler Dodge Dart



Chevrolet Cruze

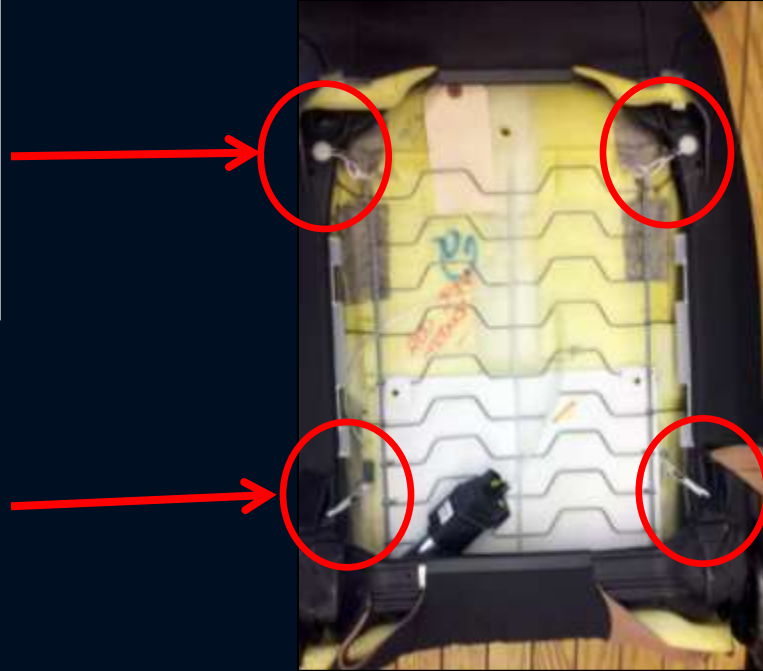


Foam Retention Cords

Upper Retention Cord



Lower Retention Cord



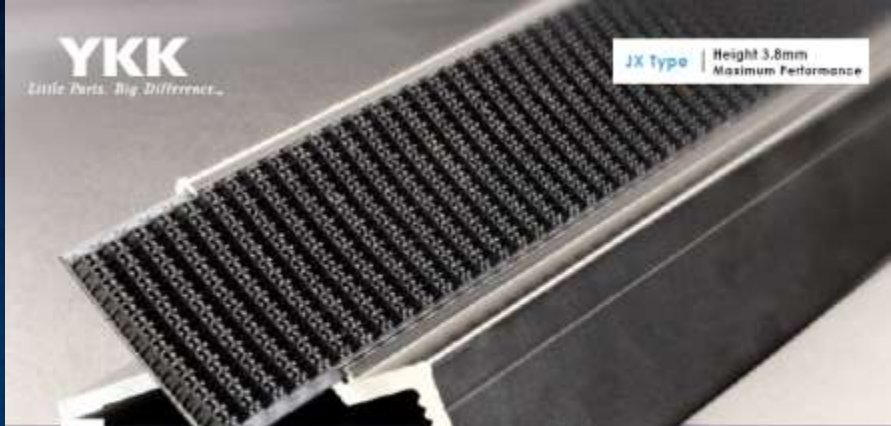
Technical info:

- Cords hold foam tight against seat frame
- FMVSS 302 flammability
- 500N pull force
- Fasteners for full spectrum of engagement possibilities



Cadillac ATS

POWERRAIL™



YKK POWERRAIL™

Made From PBT For Improved
Performance & Enhanced Weatherability



Safety Padding

Custom Padding

Stage Padding

Wall Mounting



Line of Sight Hose Cover

Joint Development Agreement between Gates & Tape Craft



Provide burst protection from hoses in operator's line-of-sight

Contain bursts and pin hole leaks in hydraulic hoses rated up to 5000 psi

Protect hose from abrasion in normal use



3D Printer: Slider Tab Sample

YKK's original size 5 metal pull has a rectangular shape. (Far Right)

A customer requested YKK to develop a bell shape, with and without the YKK logo. The 3D printer was used to verify shape before we produced the production dies (2 left samples).



3D Printer: Slider Tab Sample

YKK Japan originally designed the Cord Holder pull.



3D Model

Our customer requested the same shape in a smaller version. We were able to use the 3D printer to verify fit and function before we actually produced an expensive mold.

3D
Prototype



Final Part

YKK Macon R&D Organization



Yutaka Yokoyama



David Smith



Carroline Walker

SLIDE FASTENER

TEXTILE and PLASTICS

MACHINE DESIGN



Bryon Robinson



Shiggy Takazawa



Wolfgang Coronel



Tsuyoshi Minato



Jason Hawkins



Chieko Doyku



Ken Yamamoto



Chikako Hiromi



Jason Borden



Yasuhiro Sugahara



Howard Pfeuffer



Jim Eldridge



Ken Allen



Kevin Bradberry



Quang Duong



Tess Rhodes



Joe Maynard

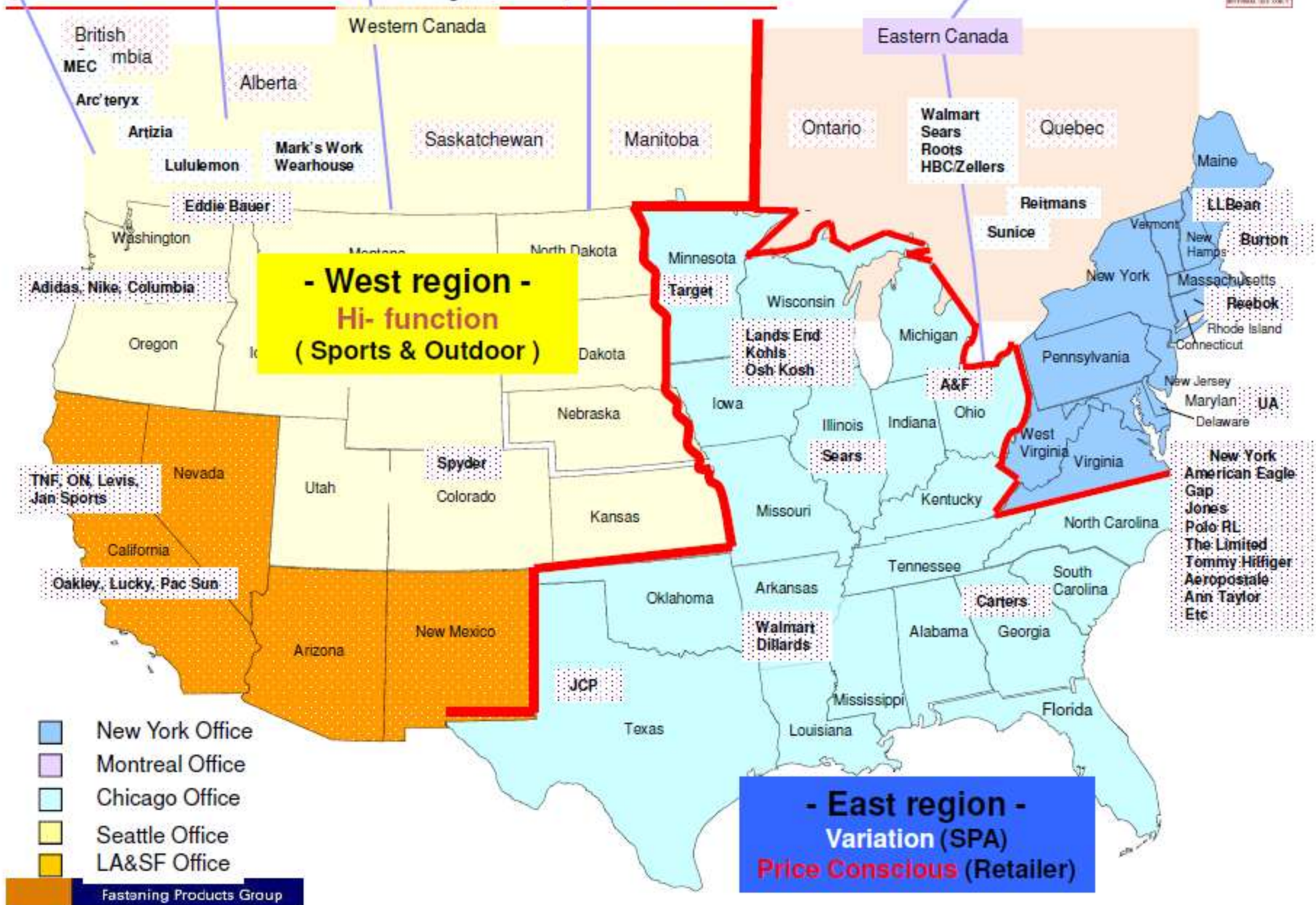


Cary Maddox



Keith Kratz

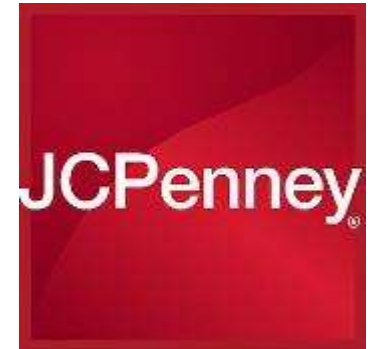
GMG USA Territory Map (as of Aug 2014)



Brand Protection



ANN TAYLOR



KOHL'S



BURTON

THE LIMITED







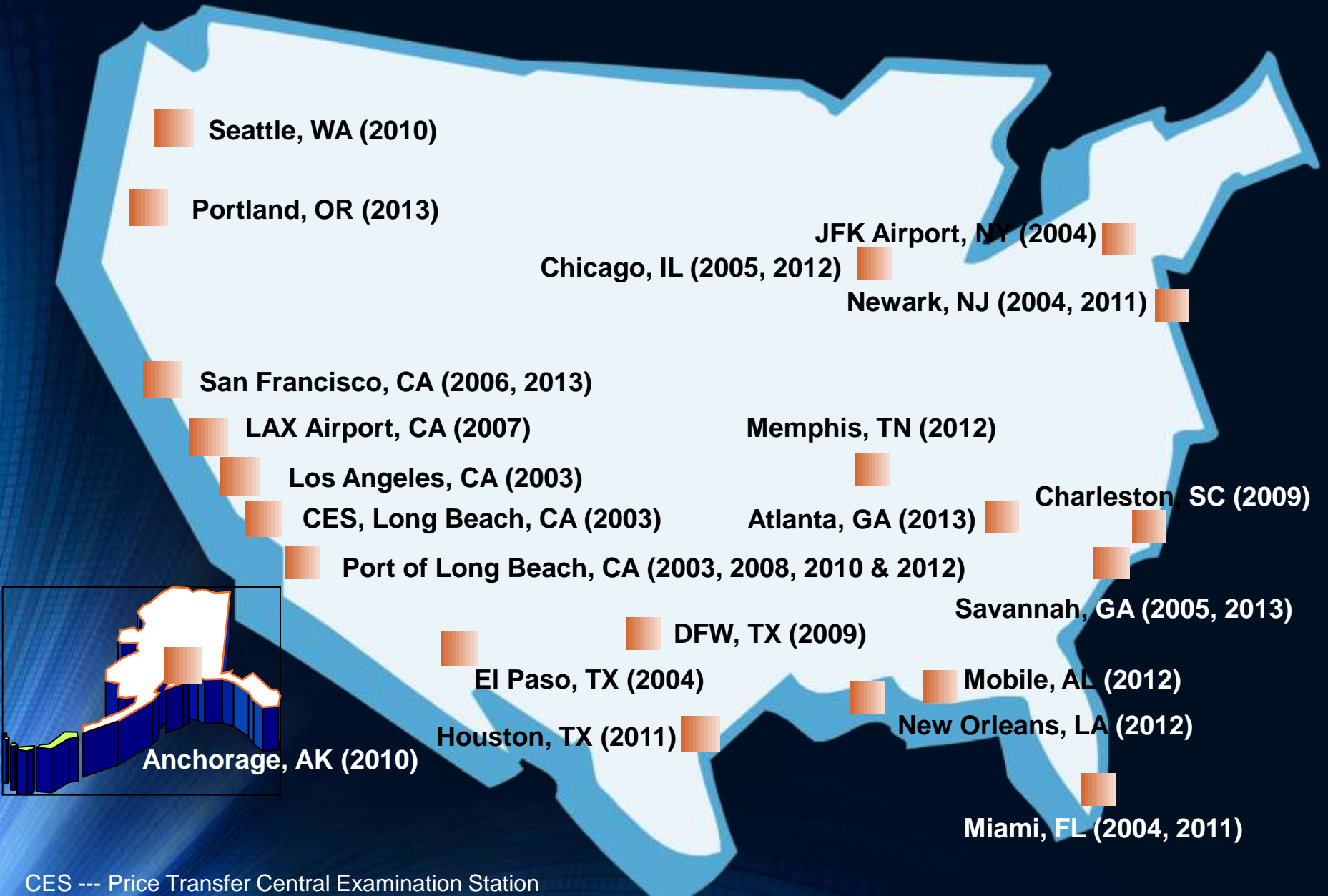
当社製品



他社製品



Product Identification Training at US Customs





ARCHITECTURAL PRODUCTS

Architectural Products Manufacturing Centers



COMMERCIAL
PRODUCTS PLANT
DUBLIN, GA



RESIDENTIAL
PRODUCTS PLANT
MACON, GA

Vertically Integrated Production

1. Smelt the T-ingots
2. Make our own aluminum extrusions
3. Produce the logs
4. Test
5. Produce the dies
6. Extrude the sash
7. Anodize with our Anodized Plus® process for the most consistent finish available



YKK AP Project Photos

Commercial Products



1010 Midtown & 1075 Peachtree
Atlanta, GA



Cornell University - Bill Gates Hall
Ithaca, NY

- Entrances
- Storefront
- Window Wall
- Curtain Wall
- Windows
- Balcony Doors
- Sloped Glazing
- Sun Control

The VUE
Charlotte, NC



CATALYST
Charlotte, NC



RBC PLAZA CONDOMINIUMS
Raleigh, NC



CARNEGIE ABBEY
Portsmouth, RI



1775 Eye Street
Washington, DC





Harbourage Place Condominiums
Fort Lauderdale, FL

ALLENTOWN ARENA
Allentown, PA





Arby's

Arby's

Arby's
DRIVE THRU

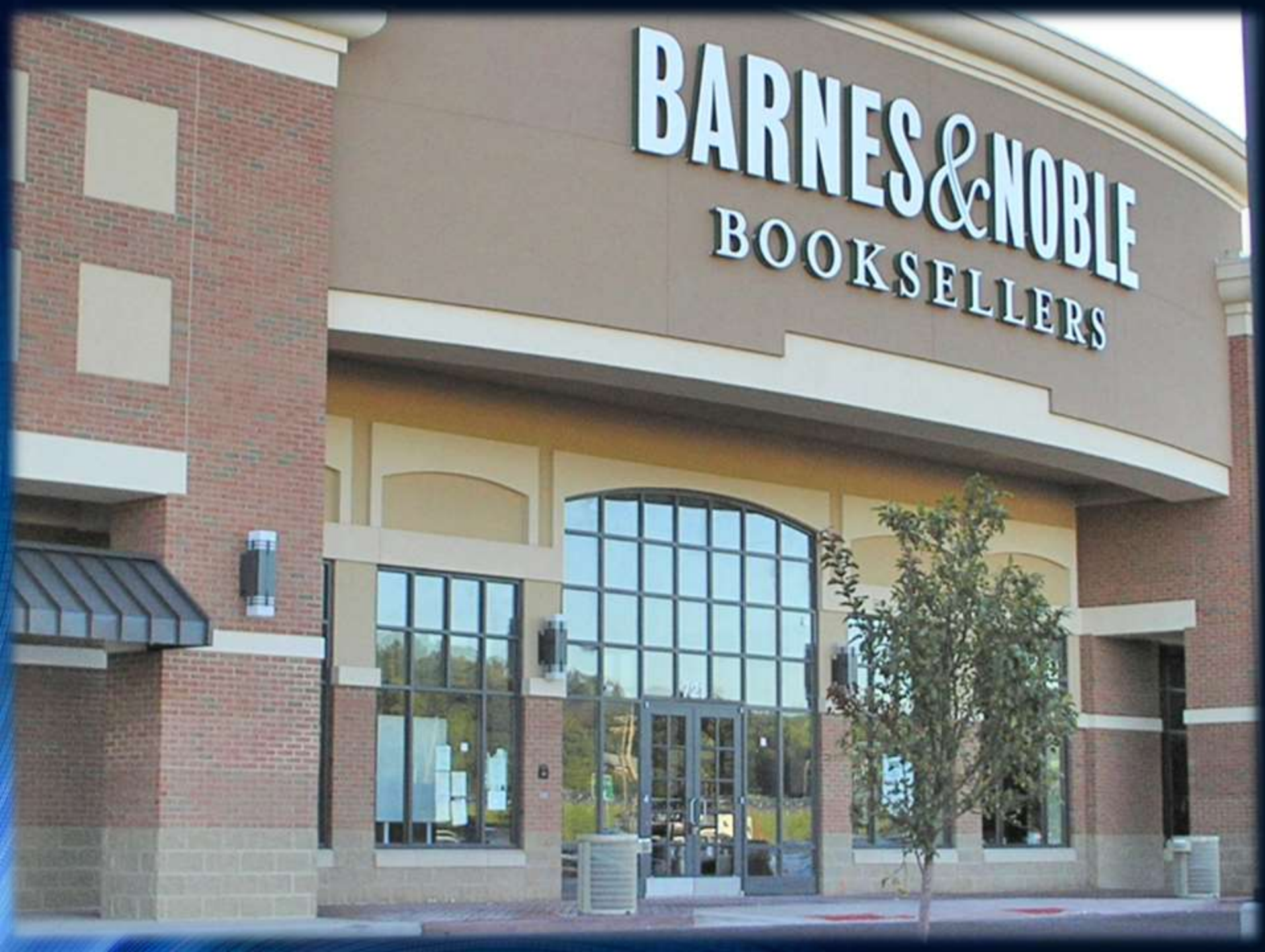
FRESH
DELICIOUS

Arby's
DRIVE THRU

Arby's
DRIVE THRU

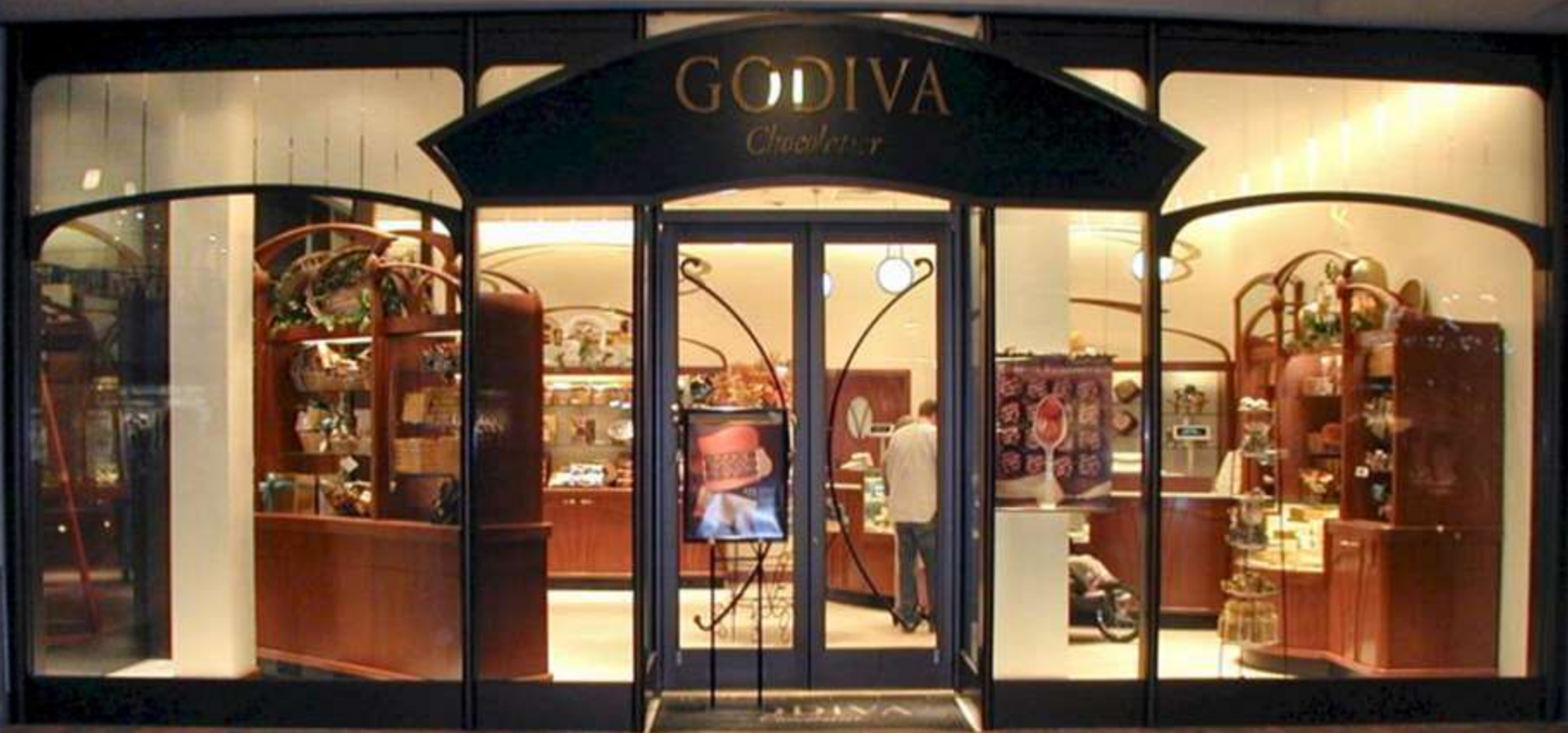
BARNES & NOBLE

BOOKSELLERS





GODIVA
Chocolatier





Residential Products



- **StyleView®** windows and doors for new construction

- **StyleGuard®** impact-resistant windows and doors for coastal new construction



- **Precedence®** vinyl replacement window and doors

Our first customer was Atlanta's John Wieland Homes



John Wieland was named "2005 Homebuilder of the Year" by the
National Association of Home Builders



Innovation: One Creative Step at a Time

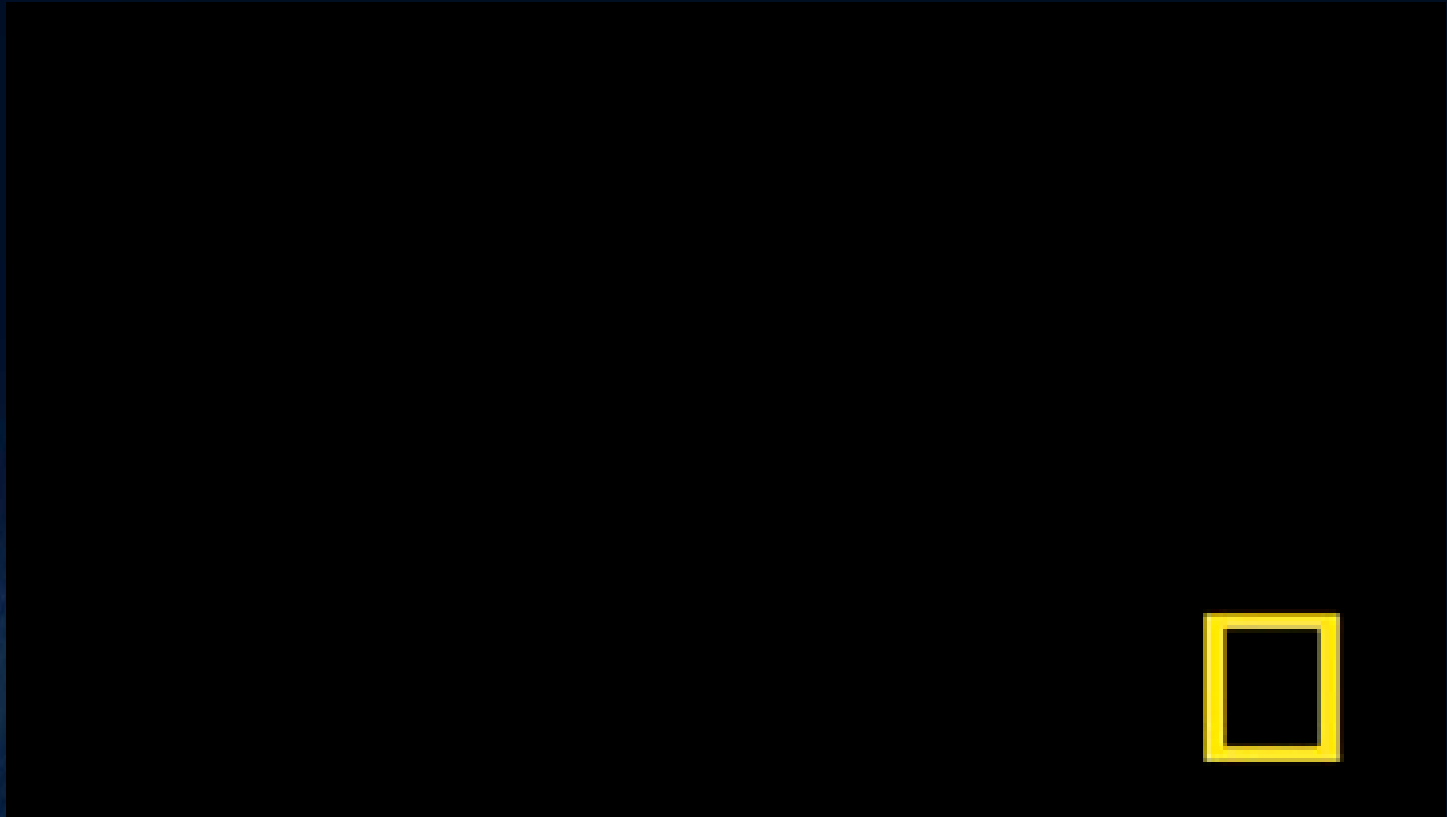
2006/4/1





Hurricane and Blast Solutions

Breaching a building's envelope can cause catastrophic damage to a building



Hurricane windborne debris, courtesy of National Geographic

YKK AP pioneered hurricane impact-resistant glazing systems and is the leading industry brand



Performance is validated using an air cannon propelling a 9 lb., 2"x4" lumber at 80 feet/second (55mph).

YKK AP pioneered hurricane impact-resistant glazing systems and is the leading industry brand



Performance is validated using an air cannon propelling a 9 lb., 2"x4" lumber at 80 feet/second (55mph).

Government facilities implement new requirements due to threat of terrorist attacks



Arena Blast Test – Lubbock, TX

Government facilities implement new requirements due to threat of terrorist attacks



Arena Blast Test – Lubbock, TX

Products absorb force from explosion & minimize flying glass to the building's interior



Studies show that up to 80% of injuries in a blast are the direct result of flying glass debris.

Products absorb force from explosion & minimize flying glass to the building's interior



Studies show that up to 80% of injuries in a blast are the direct result of flying glass debris.

Products absorb force from explosion & minimize flying glass to the building's interior



Products absorb force from explosion & minimize flying glass to the building's interior

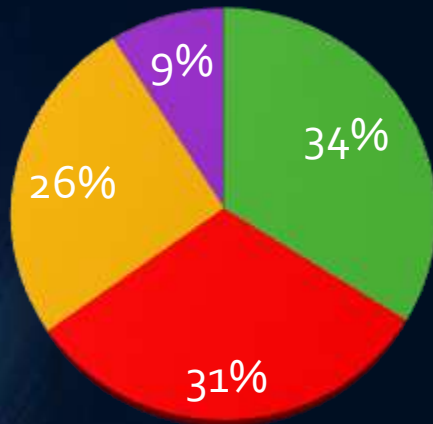




Energy Saving Solutions

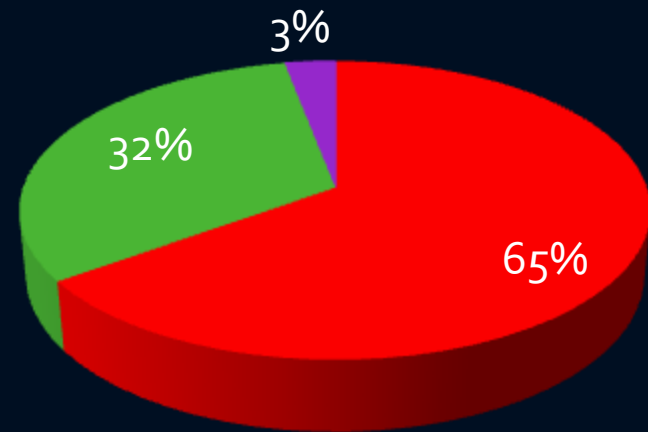
Buildings consume more energy than the transportation industry

USA Total Energy Consumption
(quadrillion BTU's)



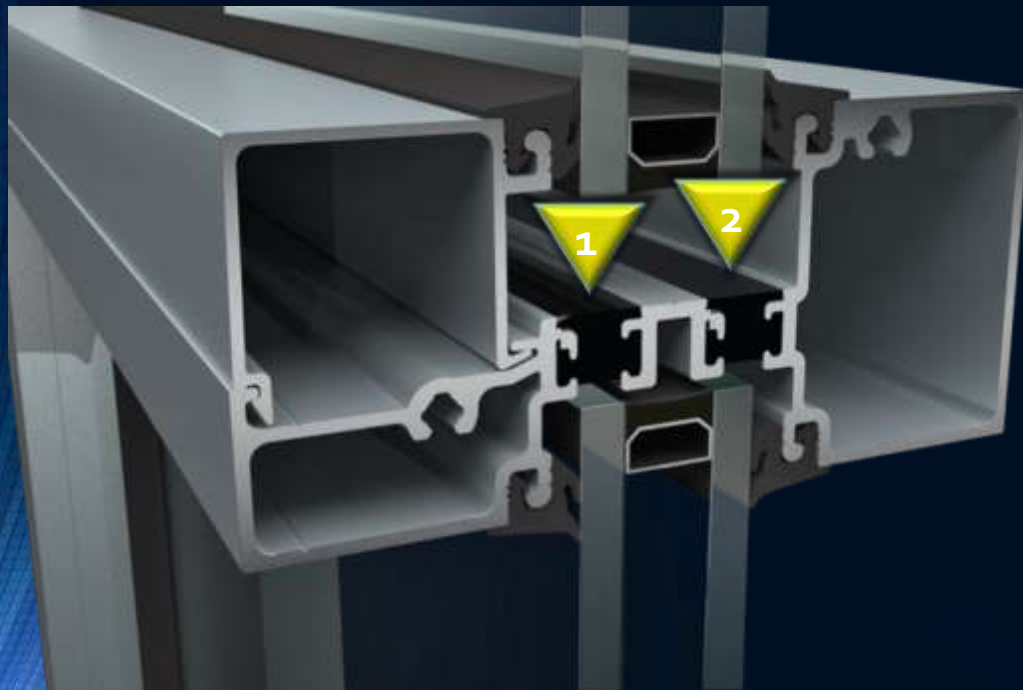
- Manufacturing
- Commercial and Residential Buildings
- Transportation
- Other

USA Total Electrical Consumption
(as percentage of total)

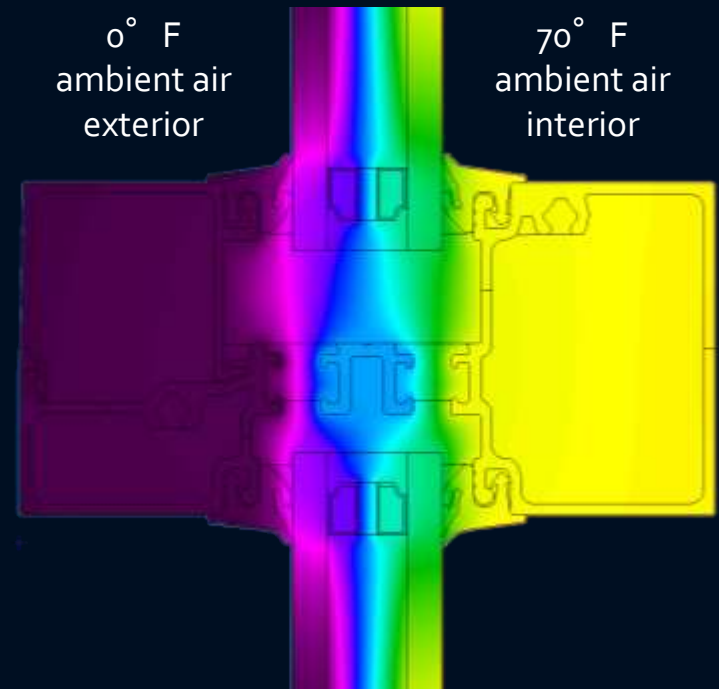


- Commercial and Residential Buildings
- Manufacturing
- Other

Innovative designs that significantly reduce energy loss/gain



YES 45 XT – Double Barrier Storefront System



Thermal barriers disrupt energy flow

The evolution continues with YKK AP products



A suite of advanced fenestration systems that meet and exceed USA's green construction codes, ASHRAE 189.1, and the next generation of standard energy codes, IECC 2012

Curtain Wall

YCW 750 XT



Storefront

YES 45 XT



Unit Wall

YUW 750 XT



Nov
2012



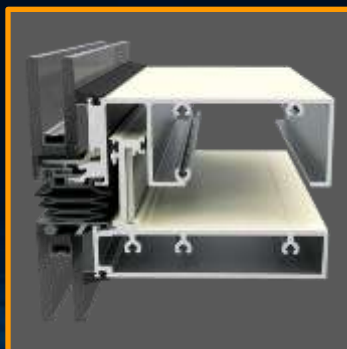
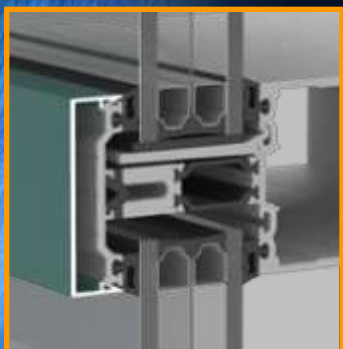
Entrances

Model 35XT, 50XT



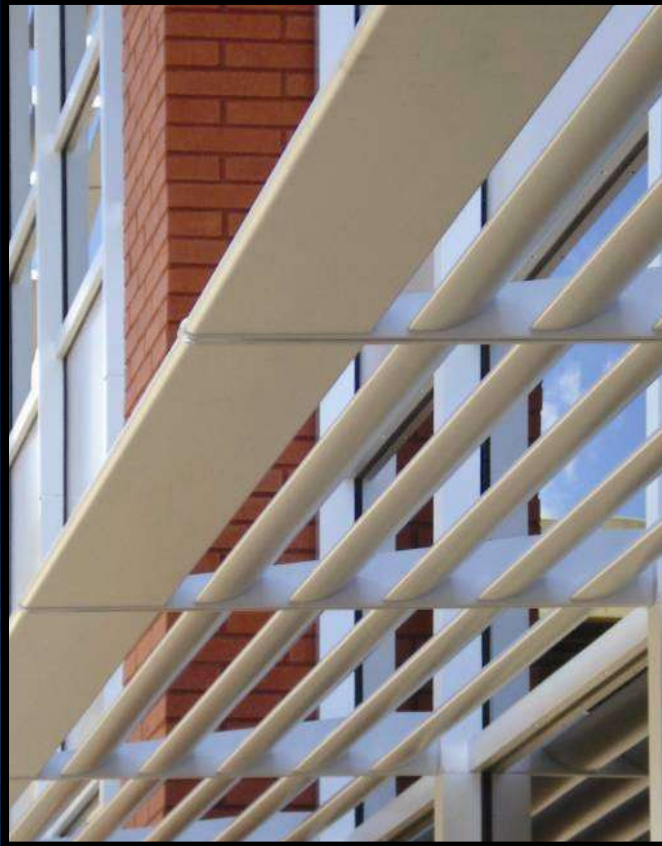
Windows

YOW 350 XT
(fixed / operable)



Green Building Design

THERMASHADE®



Developed 2007; Patent pending

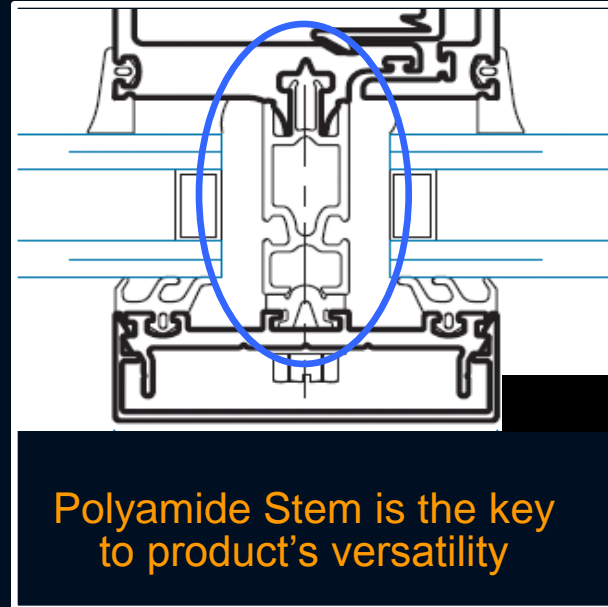
LUMINANCE® LIGHT SHELF



2009

New Unit Wall System (YUW 750 XT)

Before renovation	After renovation
	
<p>YUW 750 XT Project – Building Renovation 7550 Wisconsin Avenue Bethesda, MD</p>	



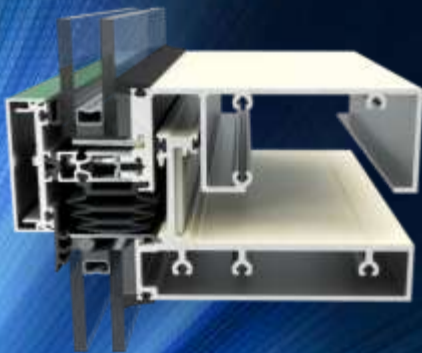
Polyamide Stem is the key to product's versatility

Greater
Energy
Efficiency

Rapid
On-site
Installation

Industry Recognition / Awards

YUW 750 XT, Unit Wall



Architectural Products Magazine
Product Innovation Award
(Nov '12)



Environmental Design +
Construction Magazine
Reader's Choice Award
(Nov '12)

The “Cycle of Goodness”

Tadao Yoshida
Founder of YKK
(1908-1993)

The “Cycle of Goodness” in Georgia



Jimmy Carter and Tadao Yoshida

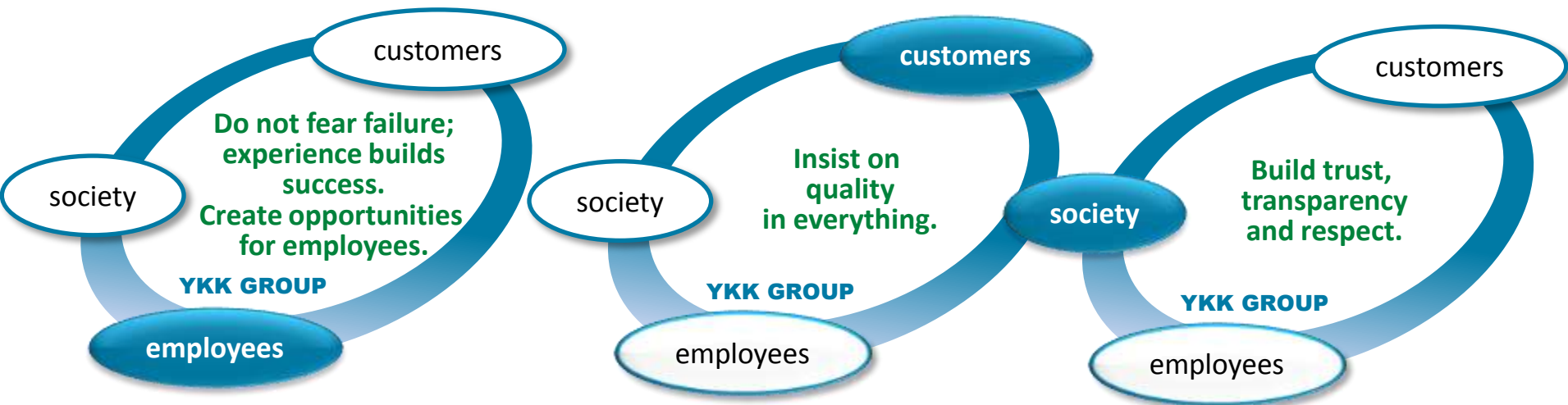
First meeting with Tadao Yoshida

“YKK seeks corporate value of higher significance”



Tadahiro Yoshida
Chairman and CEO
YKK Corporation

YKK Core Values



Core Values Initiative Objectives

UNDERSTAND

- Core Values are recognized by *every* department of the organization
- Every employee within the organization can state the Core Values from memory

IMPLEMENT

- Specific behaviors have been assigned to the Core Values
- Core Values drive decisions made by the organization at all levels

REINFORCE

- Behavior-based Values are integrated into the hiring process
- Behavior-based Values are integrated into the performance planning and appraisal process
- Behavior-based Values are integrated into the promotion process
- The organization provides recognition and rewards based on the Core Values

CREATE

The following to be completed with input from Core Values committee team members (revisit Committee list):

- Create Core Values Blueprint tying Core Values with behaviors together with Committee – finalize with senior leaders
- Distribute Values Blueprint, Philosophy Book, Philosophy Workbook, new DVD and wall decals to each site via Core Values Committee (translate all materials into Spanish and French)
- Create new core values intro Power Point with video clips to be used for longer orientations – conduct orientation (including workbook usage) for Committee via teleconference
- Create daily reminders (screensaver?)

**Autumn
2014**

ONBOARD

Leaders

- YKK University - In depth (2 hr?) Core Values workshop using Core Values Blueprint, Philosophy Book, Philosophy Workbook, new DVD
- Training on recognizing shining stars
- Attendees must then present at least once at their workplace

New Hire

- Show "This is YKK" and 4-minute Core Values video
- Distribute Core Values Blueprint, Philosophy Book and Philosophy Workbook, new DVD
- Have employees fill out Core Values commitment card and bring to 6-month workshop

6-month employees

- 90 minute (?) in-depth "Living our Values" workshop held twice per year – company overview, history, Core Values workshop using materials distributed at new hire orientation
- Senior leadership tells personal stories

All Employees

- Each Core Values Committee member conducts at least one Core Values workshop at own workplace for managers/supervisors
- Leaders must distribute and complete workbook with employees – can be over 2 month timeframe – 10 min per week?

**Ongoing,
starting late
fall / early
winter 2014**

RECOGNIZE

- Every leader requested to nominate Core Values "shining star" directly to CEO once per month; CEO selects one winner per month, sends companywide email telling the story and recognizing the employee. All winners' stories run in Shinrin; CEO sends handwritten note of congratulations directly to employee; running log kept on Benefit Focus
- Encourage employees to nominate customers/suppliers who practice our core values for recognition
- Tie charitable giving to core values/Create annual report on core values as part of corporate CSR report

Spring 2015

EVALUATE

- Create Hire "A" players – Using the values blueprint as a basis, create an Interview Guide for values hiring by identifying the key attributes for every job and tying them with one of the values
- Include Core Values in evaluations – one way is to create a simple rating tool for peers to rate the values and behaviors they have on a scale of 1 to 3 – Evaluations is done by three peer raters, manager and themselves. 50% of weight is given to living the values and meeting goals; the rest is for specific job performance that constitutes a mirror image of the hiring process. Before promoting, put the candidate through the behavior interview process to see if that person's values align with the values of the company.
- Make an annual review of the Values Blueprint and its components part of year-end planning

Fall 2015

UNDERSTAND



IMPLEMENT



REINFORCE



Core Values	Definitions	Behaviors	
Do not fear failure; experience builds success. Create opportunities for employees.	Challenge yourself. Keep trying.	Raise the bar higher and persevere.	Don't be stopped by precedent or custom. Don't just talk about it, do it.
	Support others.	For managers, once you assign a job, don't over-manage. Survey the situation and provide follow-up support as needed. When someone fails, do not reprimand. Take responsibility for what you have delegated. Analyze and clarify causes of the failure, then collaborate on how to recover.	Celebrate when there is success gained through perseverance. Recognize the process, not just the results. Always build the foundation for taking on challenges (such as knowledge, skill, courage). Share your successes.
Insist on quality in everything.	Understand what others value.	Make the effort to really know our customers, our products, and the total production process. Insist on value for the customer. Be very receptive to the customer's sense of value to see if anything is lacking in our products or services. Analyze and improve.	Take interest in the overall process, and learn from the problems and improvements of other departments. Even if your function is indirectly connected to the customer, think about how you can provide value.
	Realize value for others.	Don't give up or avoid barriers; instead, think of a way through them. Don't have a narrow point of view; think from a broad perspective and collaborate cross-functionally.	When you think you have reached your limit, go one step beyond.
Build trust, transparency, and respect.	Make fair judgments.	Improve your knowledge and awareness of compliance, and openly share with others.	Don't prejudge; listen to others and consider many points of view.
	Maintain a long-term, broad perspective.	Think like a manager, and encourage others to do so (for example, delegate planning and leadership of meetings).	Base judgments and behaviors on knowledge and information about social trends, the natural environment, etc.
	Be trustworthy.	Consider the trustworthiness of all your actions so you can be proud of all you do. Don't do what does not benefit the customer, even if YKK profits.	When you can't find the answer to a problem, don't agonize about it on your own; talk to others. Create an atmosphere for open discussion. Do what you are asked, then think of what else should be or can be done from the other's point of view.

YKK

Little Parts. Big Difference.®

YKK
ap®

Quality
inspires®