

# Add a closet with **AttiCloset**

*climate controlled*

(no floor space needed)



200% to 400% Margin Cabinetry

Exclusive patent license available



## HOMEBUILDERS SAY WILL BUY!

Greatest new home demand category

Suitable for over 40 million US homes

60 to 75 cubic feet potential closet volume

Provides climate controlled closet space

Compatible with ICC building codes

Structural engineering reviewed

Two US Patents & foreign pending



**AttiCloset**  
*climate controlled*

A new standard in closet storage

## ***Can you profit from the home storage boom?***

Demand for organized closets, garages and other home storage areas will reach \$10.9 billion in annual sales by 2019. That makes it bigger than wood flooring and windows. How can you benefit?

WOODWORKING NETWORK

## ***A walk-in closet is the most desired new home feature***

*NAHB's New American Home – 2-2-15*

- Of the estimated 110 Million single family units in the U.S., about 45% have adequate attic roof clearance to accommodate an AttiCloset. Such a cabinet can include up to 75 cu. ft. of usable space, equivalent to about four triple dressers in volumetric capacity.
- Attic temperatures in the U.S. can reach extremes of -50' F to 150' F. Elevated humidity present in hot air can promote the growth of mildew and mold, which can be damaging to fabrics, photos, books and other stored goods. AttiCloset averts these potential hazards by circulating conditioned air from a living space below through an elevated closet.
- Since the 1950's, the use of roof trusses have become the norm in home construction for reduced cost and expedited job completion. Traditional attic storage has been largely phased out as truss roofed homes have awkward attic access and load restrictions, greatly hindering storage.
- AttiCloset economically adds convenient storage space to a home without the necessity of a structural addition and increase in square footage.

:

## Cost, Pricing and Distribution

An AttiCloset installation utilizes essentially the same components and installation methods in both rafter and truss roof homes, whether existing or new construction. Existing home installations require on site cabinet assembly for hallway and doorway access. While sales and installation channels can vary, a home builder service organization, such as Builders FirstSource, can serve as the distributor and installer while the homebuilder handles the sales function. New home sales shall require a shared margin with the homebuilder. For the existing home market, sales, financing, installation and service functions can be handled by a Home Depot, Lowes or similar organization. Alternately, a direct sales/installation approach, such as those employed by many window, wood flooring, siding, gutter or other home improvement organizations may be used.

AttiCloset has been presented to five major home builders, including Pulte Homes and Toll Brothers. All five indicated a desire to offer AttiCloset as an option, especially in their condos and townhomes. Installation rates were estimated at 3% to 10%. Some builders indicated they would include a pair of oversized trusses to prep spec homes for an AttiCloset unit.

Depending on design and optional features, such as geographical insulation requirements, cedar lining and other upgrades, the estimated unit cost of fabrication is about \$700 to \$900. Basic unit sale price is estimated in the area of \$4,000, however this is to be determined by the company that receives the patent license. Installation cost is estimated below \$1,000, plus electrical. Installations in existing truss roof homes will require the consulting services of a structural engineer at an additional cost of about \$1,000. A minimum margin of 200% to 400% is projected, depending on the outsourcing of manufacturing sales and installation.

The general rule for retail pricing of a new product is the price should approximate the cost of the product it is replacing. In the case of AttiCloset, the only apparent replacement product would be a structural addition to a home, which would cost perhaps \$12,000 to \$20,000, which is unrealistic. To determine feasible retail pricing, a measure of elasticity of demand with surveys or test marketing is necessary.

## **Home Builder Sales Estimates**

Below installation rates were estimated by top management and marketing staff of the below home builders. Every builder contacted expressed an interest in offering AttiCloset as an option.

**Pulte Homes** – 10% installation rate in smaller homes and condos.

**MJC Homes** – 20% installation rate in condos and smaller homes. Much lower in large single family units.

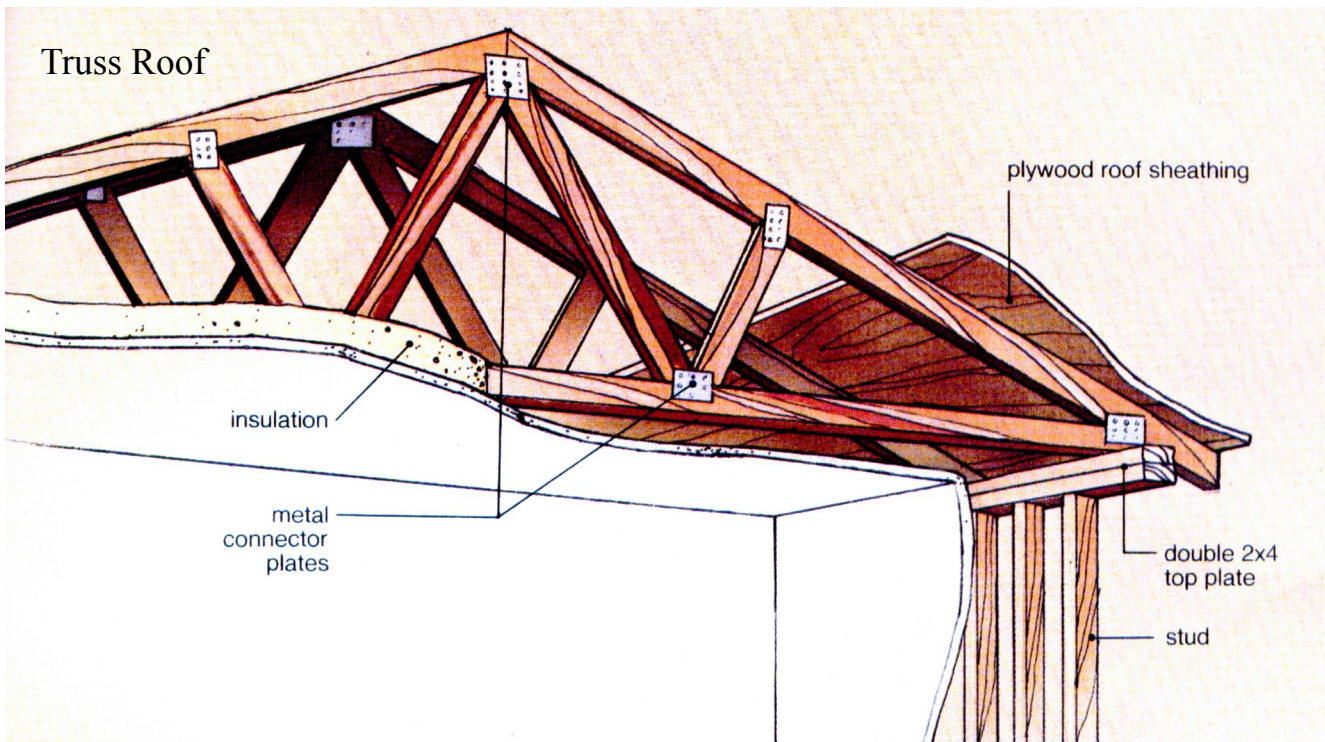
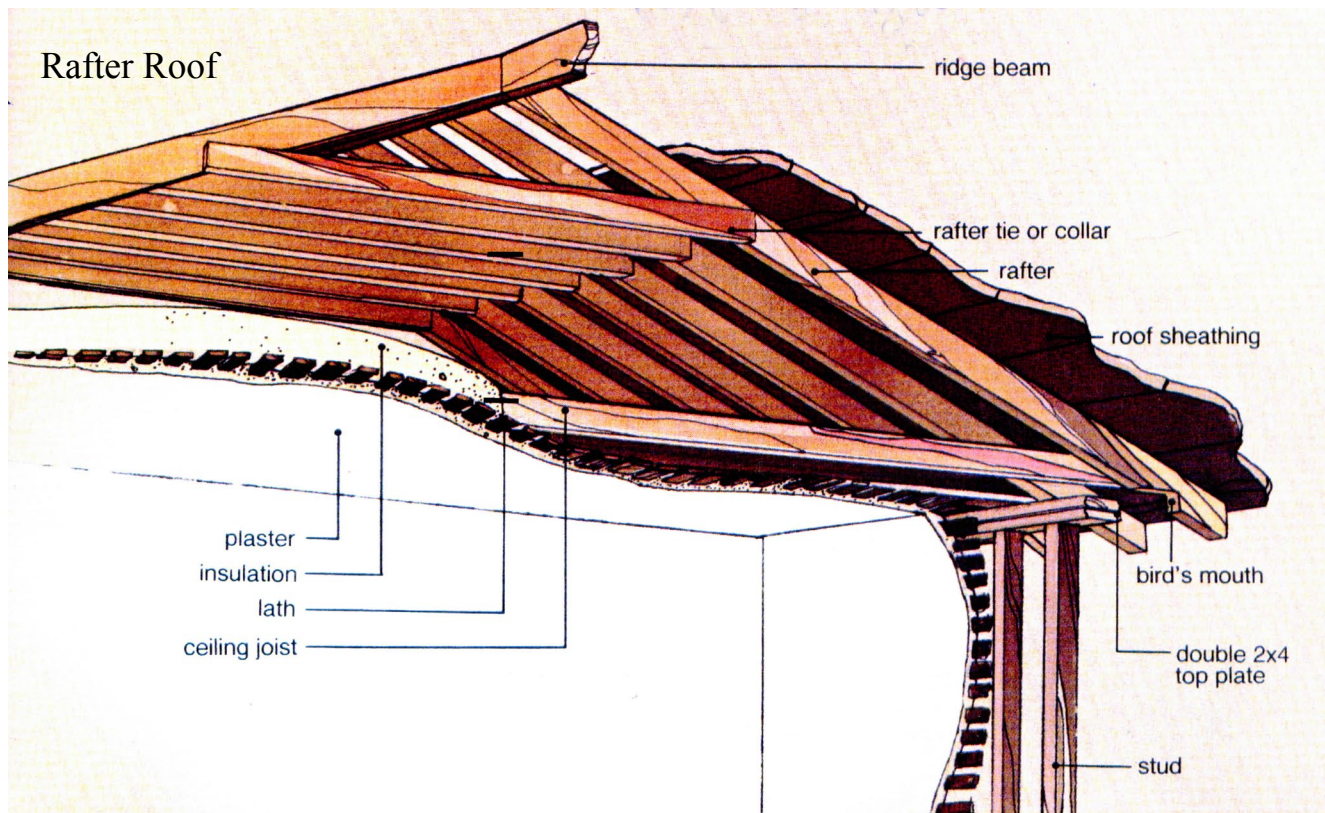
**Toll Brothers** – Single digit installation rates in condos and townhomes. Suggested other applications.

**Robertson Brothers** - 5-10% installations in single family and 10-20% in condos and town homes.

**Lombardo Homes** – 25% installation rate in smaller homes and condos.

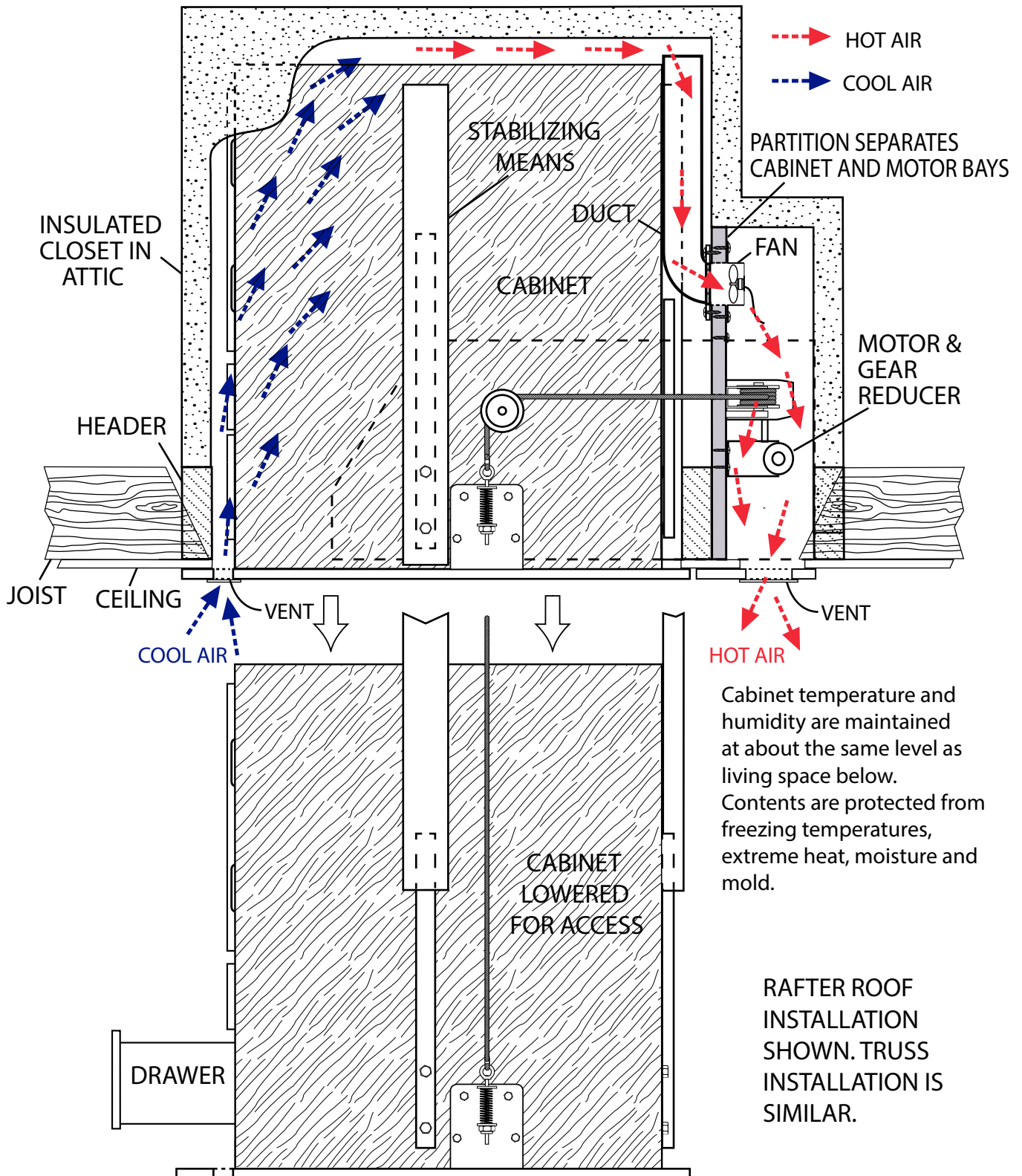
# AtticCloset installs in any home with adequate roof clearance

If more clearance is needed, a dormer can generally be installed.



# AttiCloset Operation

In hot weather, a fan circulates cooler air from a living area below through the space between a closet and cabinet as warmer air is circulated back into the living space. In cold weather, warmer air from the living area below is drawn up through vents in the bottom panel through normal warm air rising or fan circulation, as needed.



# Engineering and Development



Simulation models have been tested at 750 lbs








Stabilizing methods have been tested



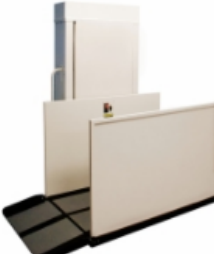
## PRICING EXAMPLE: LIFT INSTALLED COST IS \$10,000 TO \$15,000

### Hercules II 600 Residential Factory Reconditioned



[Write a Review!](#)

[Read 3 reviews](#)




<b>\$3,695.00</b>	<b>Lifting Capacity:</b>	600 lb
Plus Shipping	<b>Standard Lift Height:</b>	53"
Reg. \$4,589.00	<b>Maximum Lift Height:</b>	77"
	<b>Lift Speed (FPM):</b>	10
	<b>Platform Type:</b>	Solid with Non-Skid Coating
	<b>Platform Size:</b>	36" x 48" (34" Usable Width)
	<b>Optional Platform Sizes:</b>	36" x 54" (34" Usable)

More Info

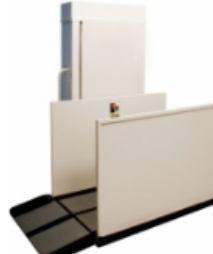
Add to Cart

### Hercules II 600 Residential Vertical Lift



[Write a Review!](#)

[Read 19 reviews](#)




<b>\$3,895.00</b>	<b>Lifting Capacity:</b>	600 lb
Plus Shipping	<b>Standard Lift Height:</b>	53"
Reg. \$5,289.00	<b>Maximum Lift Height:</b>	77"
	<b>Lift Speed (FPM):</b>	10
	<b>Platform Type:</b>	Solid with Non-Skid Coating
	<b>Platform Size:</b>	36" x 48" (34" Usable Width)
	<b>Optional Platform Sizes:</b>	36" x 54" (34" Usable)

More Info


Add to Cart

### Hercules II 750 Commercial Vertical Lift



[Write a Review!](#)

[Read 1 review](#)




<b>\$4,818.00</b>	<b>Lifting Capacity:</b>	750 lb
Plus Shipping	<b>Standard Lift Height:</b>	53"
Reg. \$8,499.00	<b>Maximum Lift Height:</b>	171"
	<b>Lift Speed (FPM):</b>	10
	<b>Platform Type:</b>	Solid with Non-Skid Coating
	<b>Platform Size:</b>	36" x 54" (34" Usable Width)
	<b>Optional Platform Sizes:</b>	36" x 60" (34" Usable), 42" x 54" (34" Usable), 42" x 60" (40" Usable)


More Info

Add to Cart

### Hercules II Toe Guard Commercial Vertical Lift



[Write a Review!](#)



<b>\$10,787.00</b>	<b>Lifting Capacity:</b>	750 lb
Plus Shipping	<b>Maximum Lift Height:</b>	53"
Reg. \$17,899.00	<b>Lift Speed (FPM):</b>	10
	<b>Platform Type:</b>	36" x 60" inside clear platform; straight-thru configuration
	<b>Platform Size:</b>	36" x 60"

More Info

Add to Cart

**53" Maximum Lift Height.**

The Toe Guard has a **750 lb. capacity** and eliminates the need to build a hoistway for the lower landing.



**HOME IMPROVEMENT PRICING**  
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Color: White

- House  Garage
- Building:  Other:

- 5" K-Style System: \$ 1,895.00
- 6" K-Style System:
- 7" Box Gutter:
- 6" Half Round:
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- Stamped Fascia Brackets

- Gutter Guard:
- Terminator:
  - Rhino Guard:
  - The RX Guard: \$ 900.00

- Tear off
- Hidden Hangers
- Strap Hangers

**\$2,795**

\$10,044  
- 750 Detroit News Coupon  
\$9294  
- 250 Rain Barrel/USA Discount  
\$9044  
- 150 Senior Discount  
\$8894 includes TAX



Both proposals are for 221 lin. ft. on same home.

**Replacement with 16 quality windows - \$28,000.  
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Andersen windows average \$2,000 per unit, installed.  
Marvin's quality windows are about \$1,500 per unit.

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by Andersen**

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Other restrictions may apply.

## EXTREME SAFETY

Elevators are the safest mode of human transportation and accidents are extremely rare. Although AttiCloset has operational similarities to an elevator, it is considerably safer as people are not in transit. AttiCloset shall have fail safe features similar to those of an elevator as well as several additional safeguards, such as:

- Both a key operated switch and a programmable code are used to initiate cabinet movement. Following the entry of the code, the operator has a predetermined time to activate movement or the code must be re-entered.
- Obstruction detection circuitry is integrated in the electronic motor controls and when an increase or decrease of a weight load in transit is sensed in either the up or down direction, indicating an obstruction, cabinet movement immediate stops.
- An infrared human-animal proximity sensor prevents movement of the cabinet if either a child or animal is detected within or immediately near the cabinet travel path.
- When in the stored, fully up position, failsafe, spring loaded, solenoid actuated locking bars prevent unintended descent of the cabinet. In event of a power failure, the locking bars are secured.
- An electromagnetic brake motor and/or high ratio worm gear motor, similar to those used in elevators, prevents back driving or non-powered reversing of the motor.
- The cables used to lift the cabinet are the same type used for passenger elevators in a 40 story building and are rated at over four times the possible loading. In the extremely rare possibility of a cable's failure, one or more others are more than adequate to support the cabinet, far in excess of a full load capacity.
- Designed for minimum maintenance, the wall mounted electronic control panel runs a self check prior to each usage of the system and clearly alerts the user if maintenance is required. This is similar to aircraft electronics monitoring.
- Electronic motor control restricts lift weight to a specified capacity. Cabinet will not move and alarm will signal if such weight is exceeded.
- Interlocking circuitry prevents cabinet movement when a cabinet door or drawer is open.
- Electronic motor control start ascending and descending movement very slowly for first few seconds.
- Mockups have been tested to 750 lbs gross weight; over four times the estimated practical weight load.
- A jacking crank is provided for manual lowering in event of motor/power failure.

## Salient Information

- The design and installation of an AttiCloset unit is somewhat more complex than installing a typical closet system. We view this difference as a substantial advantage in precluding a handyman from jerryrigging an improper installation or allowing infringing units to be imported.
- A dormer can be added to facilitate installations in most homes with lower pitch roofs at an additional cost of \$3,000 to \$4,000.
- Preliminary design work has focused on conformity to building codes and maximizing safety features while minimizing carpentry skill required for installation, utilizing indexing and pre-measured components.
- Installations in existing truss roof homes will likely require the consulting services of a structural engineer at a cost of about \$1,000. Generally this installation consists of a sistering new joists to existing truss bottom chords. Trusses are never cut. Although truss spacing is commonly 24" on centers, truss installed cabinets can have about the same volumetric capacity as rafter installed units, dimensionally reconfigured.
- New home installations are less costly than those in existing homes. A standard truss is designed to carry about 8-9 lbs per sq. ft. however, a builder can upgrade a pair of trusses to support 50 lbs per sq. ft. for less than \$50, inexpensively preserving this option on spec. homes.
- It is estimated that about 10% of all installations shall include two AttiCloset units.
- Existing home installations require knocked down delivery and assembly on site, as the cabinet is too large to fit through most home doorways and hallways. New construction homes can receive assembled cabinetry.
- AttiCloset provides home builders with a practical and attractive feature for enhanced profitability in adding significant value to a home. It is also an excellent sale closing tool.

## Salient Information

- Preliminary marketing studies, product engineering and testing have been completed. Once detailed engineering is finalized, International Code Council (ICC) listing can generally be accomplished in about 9 months. An ICC Evaluation Report is widely accepted by building departments around the country, greatly simplifying permitting and approval processes.
- Separate cabinet and motor bays are provided, allowing for complete servicing of all components from below, eliminating building code requirements for a scuttle, attic walkways, attic lighting and additional electrical provisions.
- Today's newer homes have higher pitched roofs, many permitting a 72" H cabinet with 60 to 75 cu. ft. of closet space. In existing homes where such clearance is not available, a shorter and deeper cabinet can yield about this same capacity,
- New truss home installations are simpler and less costly. Unlike most existing installations, which have restrictive doorways and hallways, the cabinet can be delivered to the job site fully assembled.
- Upgrade options such as aromatic cedar, hardwood veneers and special cabinetry provide additional margin opportunities.
- UK and European homes are about 50% the size of those in the U.S., and are about twice the cost per sq. ft. Built-in closets are uncommon and AttiCloset would have broad appeal in these countries.
- AttiCloset is readily adaptable to concrete ceilings, more commonly found in European countries.
- Unique among home features, once AttiCloset is seen in action it is not readily forgotten.

# Intellectual Property

## USA

U.S. Patents 8,820,003 and 9,271,571 have issued.

A US PTO Trademark has been filed on the AttiCloset name

AttiCloset.com and AttiCloset.net domains have been filed

## Europe, UK, Canada and Australia

Patents are pending in Canada, Australia and the European Patent Office, allowing for patent coverage in the UK and major European countries including Germany, the world's largest exporter of cabinetry.

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## Circuitry and Electronic Motor Control Design

Dr. Patrick McCleer, President of McCleer Power, Inc. has preliminarily reviewed the electronic, motor and safety requirements of AttiCloset as outlined herein and is prepared to move forward with a proposal for engineering, design and build of the indicated circuitry and electronic controls. All resultant intellectual property, designs, patents, etc., on new start projects shall be annexed to those above.

McCleer Power's clients have included: the Electric Power Research Institute, DOE Idaho Falls, U.S. Army Tank and Automotive Command, Whirlpool, General Motors Corporation, Ford Motor Company, General Dynamics Land Systems, Mechanical Technology, BalaDyne, Ingersol-Rand, Mechanical Products, Fasco, Visteon, Trico Automotive Products, and Allied Signal Aerospace.

McCleer design specialties include:

- Squirrel-cage induction machines and drives,
- Permanent-magnet AC machines and drives,
- Adjustable speed motors and drives for pumps, fans and compressors,
- Alternators for vehicles and stationary applications, &
- Power electronic drives based on low cost micro-controllers or high performance motor control ICs.

McCleer Power, Inc.  
2421 Research Dr.  
Jackson, MI 49203



## Contractors and Advisors

DELOREAN, LLC is a product planning and development group dedicated to creating new product offerings for licensing to manufacturers, distributors and installers.

Those contributing to the planning, patenting and development of AttiCloset include:

Benjamin Stasa – Patent Attorney  
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President, Sheppard Engineering, P.C.  
Wood truss design specialist  
WTCA QC Certified Inspector  
Troy, MI

Mark S. Stimak – Civil Engineer  
Compliant by Design LLC  
Former Chief Building Inspector of Troy, MI  
Former Planning Director of Troy, MI  
Troy, MI

Mark Carpenter – Professional Engineer  
Skylab Development  
Design Engineer and Prototype Fabricator  
Allen Park, MI

Jack Z. DeLorean, CEO – Product Planner & Designer  
DELOREAN, LLC, Bloomfield, MI  
Founder of Grand Prix of America  
One of two product planners on the Ford Mustang



(12) **United States Patent**  
**DeLorean**

(10) **Patent No.:** **US 8,820,003 B2**  
(45) **Date of Patent:** **Sep. 2, 2014**

(54) **RETRACTABLE ATTIC CLOSET**

(56) **References Cited**

(71) Applicant: **Jack Z. DeLorean**, Bloomfield Village, MI (US)

U.S. PATENT DOCUMENTS

(72) Inventor: **Jack Z. DeLorean**, Bloomfield Village, MI (US)

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(73) Assignee: **DeLorean, LLC**, Bloomfield, MI (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/968,229**

(22) Filed: **Aug. 15, 2013**

(Continued)

(65) **Prior Publication Data**

US 2014/0053472 A1 Feb. 27, 2014

FOREIGN PATENT DOCUMENTS

EP 0794278 A1 10/1997  
GB 2253994 A1 9/1992

Primary Examiner — Robert Canfield

(74) Attorney, Agent, or Firm — David Pressman

To download full patent copy, go to [pat2pdf.org](http://pat2pdf.org) - enter patent number

**Related U.S. Application Data**

(60) Provisional application No. 61/692,147, filed on Aug. 22, 2012.

(51) **Int. Cl.**  
*A47B 51/00* (2006.01)  
*A47B 81/00* (2006.01)

(52) **U.S. Cl.**  
CPC ..... *A47B 81/00* (2013.01)  
USPC ..... *52/29; 52/67; 312/242; 312/247*

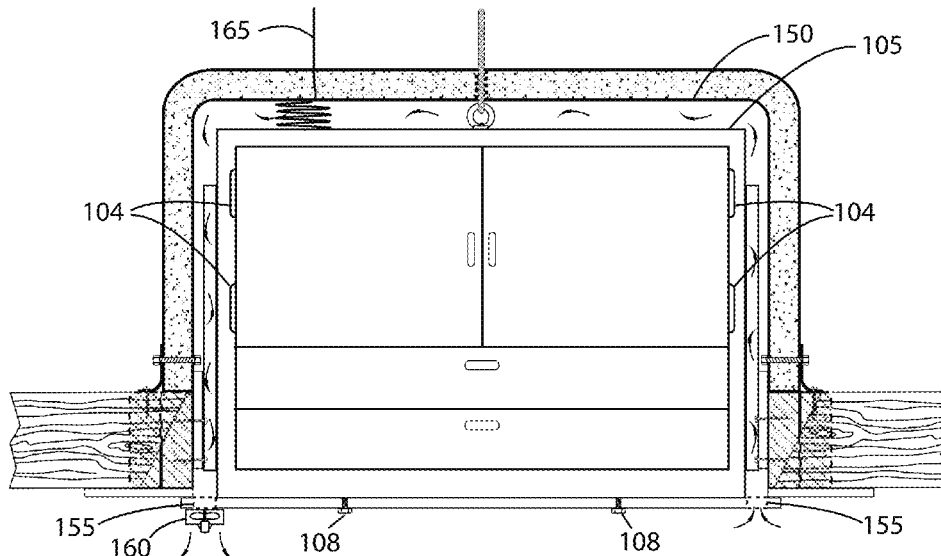
(58) **Field of Classification Search**  
CPC ..... *A47B 51/00; F24C 15/027; E04B 9/003*  
USPC ..... *52/29, 67; 312/242, 245-247; 414/267, 414/281*

See application file for complete search history.

(57) **ABSTRACT**

A closet can fit into an attic and a cabinet (105) can be retracted out of the closet to the living space below manually, or using a return spring or electrical means. An air space (150) around the cabinet insulates it from thermal contact with the walls. A panel (110) with vent openings (155) is affixed to the bottom of the cabinet. In an alternative embodiment the cabinet is hung from a restraining member (145), or arm (1105), by which it can be raised for storage and lowered for access. When raised, the panel is in contact with the ceiling (110) between the attic and air from the living space mixes into the air space by convection. A fan (160) can urge circulation between the air space and the living space, reducing of temperature extremes in the air space and hence the cabinet.

**21 Claims, 23 Drawing Sheets**





US009271571B2

(12) **United States Patent**  
**DeLorean et al.**

(10) **Patent No.:** **US 9,271,571 B2**  
(45) **Date of Patent:** **\*Mar. 1, 2016**

(54) **RETRACTABLE VENTED ATTIC STORAGE SYSTEM**

(71) Applicants: **Jack Z. DeLorean**, Bloomfield Village, MI (US); **Mark Carpenter**, White Lake, MI (US)

(72) Inventors: **Jack Z. DeLorean**, Bloomfield Village, MI (US); **Mark Carpenter**, White Lake, MI (US)

(73) Assignee: **DeLorean, LLC**, Bloomfield Village, MI (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/605,322**

(22) Filed: **Jan. 26, 2015**

(65) **Prior Publication Data**

US 2015/0216298 A1 Aug. 6, 2015

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 14/451,081, filed on Aug. 4, 2014, now abandoned, which is a continuation-in-part of application No. 13/968,229, filed on Aug. 15, 2013, now Pat. No. 8,820,003.

(60) Provisional application No. 61/692,147, filed on Aug. 22, 2012.

(51) **Int. Cl.**

**A47B 46/00** (2006.01)  
**F24F 7/007** (2006.01)  
**A47B 51/00** (2006.01)  
**E04B 9/00** (2006.01)  
**E04B 9/02** (2006.01)  
**F24F 13/20** (2006.01)

(52) **U.S. Cl.**

CPC ..... **A47B 46/005** (2013.01); **A47B 51/00** (2013.01); **E04B 9/003** (2013.01); **E04B 9/02** (2013.01); **F24F 7/007** (2013.01); **F24F 13/20** (2013.01); **A47B 2051/005** (2013.01); **E04B 9/006** (2013.01)

(58) **Field of Classification Search**

CPC .. **A47B 51/00**; **A47B 2051/005**; **E04B 9/003**; **E04B 9/02**; **B66B 9/00**; **F24F 7/007**  
USPC ..... **52/29**, **67**; **312/242**, **245-247**; **414/267**, **414/281**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

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(Continued)

To download full patent copy, go to [pat2pdf.org](http://pat2pdf.org) - enter patent number

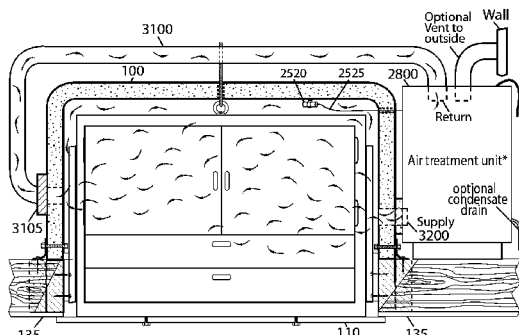
*Primary Examiner* — Robert Canfield

(74) *Attorney, Agent, or Firm* — David Pressman

(57) **ABSTRACT**

A closet or enclosure **100** (closet) fit into an attic. A panel (**110**) forms the bottom of the closet. The panel can be lowered to the living space below manually or by using a return spring or electrical means. The panel holds a cabinet, box, or other storage item (**105** or **2225**). Air space (**150**) around the cabinet or items insulates it from thermal contact with the walls. Alternatively a cabinet is hung from a restraining member (**145**), or arm (**1105**), so it can be raised for storage and lowered for access. In this aspect, the panel is secured to the bottom of the cabinet. Optional vents (**155**) and fan (**160**) urge circulation between the air space and the living space, reducing temperature extremes in the air space and hence the cabinet. In other aspects, air treatment units (HVAC, dehumidifier, etc.) condition the air within the closet or enclosure.

**17 Claims, 23 Drawing Sheets**



\*Air treatment unit:  
Air conditioner, heater, heat pump, dehumidifier,  
heat recovery ventilator, energy recovery ventilator,  
evaporative cooler, air handler or HVAC unit.

