Project Analysis
For T-Hangar Construction & Financing
At the Lawrence Municipal Airport

Prepared by the Aviation Advisory Board
City of Lawrence, Kansas
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Executive Summary:

In July 2003, the Lawrence Municipal Airport (LWC) completed construction on 20 new T-Hangars to meet growth and demand for services by airport users. Since 2003, the Lawrence Municipal Airport continues to receive requests for additional hangar space from pilots around Northeast Kansas.

This project study, prepared by the Aviation Advisory Board for the City of Lawrence, presents information for the construction of 20 new T-Hangars to meet market demand for those pilots wanting to base their aircraft at the airport.

Since the opening of 2003's 20 T-Hangars, a waiting list of potential tenants, almost 70 percent are from outside Lawrence/Douglas County, exist that will contribute to the local economy beyond the monthly rental payment of an individual T-Hangar.

As the Aviation Advisory Board presented its findings to the City Commission in a 2002 project proposal, discussion was encouraged to examine the financing of this project and the merits of private development on a city-sponsored asset vs. development with city financing in an economy with shrinking revenue streams and increasing budgets.

The Aviation Advisory Board for the City of Lawrence remains on record as supporting city-owned rental hangars as the best course to serve the interests of Lawrence and the aviation public.

The Board has worked with City Manager Dave Corliss and his staff to develop preliminary construction costs and financing scenarios on this project. This initial project analysis hopes to guide discussion and direction between the City Commission, Advisory Board and city staff to begin prompt action to serve our aviation customers.

I. A Historical Overview:

Since its dedication in October 1929, the Lawrence Municipal Airport (LWC) has served the Lawrence/Douglas County community as the front door from the skies. As one of the oldest, continuously operating airports in the state, LWC has grown and continued to evolve into one of Northeast Kansas' premier general aviation facilities.

The approximate 445 acres of land where the airport resides today was first owned by Kansas University and then deeded to the Kansas University Endowment Association, which in turn sold the land to the City of Lawrence in 1977. Originally, four runways were constructed on the grounds where two runways serve users today.

During World War II, LWC was a major training facility for student pilots at Kansas University in primary flight instruction before advancing to military flight instruction. Between 1939 and 1942, LWC trained 421 pilots.[1]

In 1951, as the flood waters of the Kansas River encroached onto the airport property, aircraft were flown to south Lawrence and landed on property next to the "Haskell Pasture" owned by local aviator Delbert Richardson. The community is blessed to have an airport with a strong service record, and a colorful history.

Through the years, LWC has benefited from millions of dollars in federal and local grants to rehabilitate, improve, and extend facilities and services to local and transient aviators. Included in that long list of grants were funds of $1.1 million for construction and installation of an Instrument Landing System (ILS), which allows for flight operations in adverse weather. This project was a main catalyst in pushing LWC to the forefront of aviation services in Northeast Kansas.

With the completion of a 700-foot extension to its primary runway, 15/33, in Fall 2002, LWC has the fourth longest general aviation runway in Eastern Kansas[2]. LWC drops to fifth longest when Downtown Kansas City (MO) airport is included in the Northeast Kansas market analysis.

In September 2001, an additional 18,000 square yards of parking apron was added to the current 14,000 square yards of older apron. This expanded surface has allowed LWC to safely and conveniently service larger volumes and sizes of business jets, twin-engine turboprops and single engine aircraft.

Since 2000, the Lawrence Municipal Airport has been rebuilt into an outstanding general aviation facility thanks to a significant investment exceeding more than $7 million. This investment allows LWC to compete favorably with airports in its market region and nationally for its share of the aviation dollar, and the demand continues to increase for services and facilities.

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[1] Lawrence Journal World, August 1951

[2] Airport Layout Plan July 2001; Chap 2-3; Airport Development Group, Denver, CO.

II. A Need Assessment for T-Hangars

In August 1951, the Lawrence Journal-World published a four-part series about airport development and growth. The lead paragraph in Part Two's coverage aptly summed up development at LWC:

"Lawrence's municipal airport is jinxed when it comes to improvements." [3]

50 years later, the City of Lawrence, Aviation Advisory Board and the Federal Aviation Administration have created a comprehensive planning document that has resulted in more than $7 million worth of improvements to the airport and charted a defined path for growth and improvement of facilities.

One of the greatest challenges to the airport is the anticipation of market demand for services and facilities at the airport. In particular, market demand continues to increase for hangar facilities for use by individual and business-owned aircraft.

In 1999, the Aviation Advisory Board wanted to gauge market demand for new units, and proceeded with a non-binding letter of intent to lease (Fig. 1). All inquiries were handled by the FBO, Hetrick Air Services, and kept on file for periodic review. As the airport and city prepared to build 20 new units in 2002, this list was consulted regularly and after tenants were secured to fill all the new units from this list – a new list was established in 2003 for future vacancies and to gauge demand for future construction.

A current waiting list of potential renters is located in the appendix of this report (Fig. 4).

It is important to note the number of individuals on the waiting list from outside Lawrence/Douglas County. While there are many possible indicators why non-residents choose LWC, the Advisory Board has concluded two basic reasons:

1. Market demand due to dwindling/stagnant inventories of hangar units in Northeast Kansas, and the Kansas City market.
2. The desirability to be based in Lawrence due to outstanding airport facilities, services and the airport's proximity outside of the Kansas City regulated airspace.

The Aviation Advisory Board recently completed another rate survey this summer, similar to the 2002 survey, of competing area airports in Northeast Kansas (Fig. 2). Important elements in this survey were unit rates, number of units on the airport, unit availability and notation of potential construction or recent construction of new units.

While a small increase in inventory was experienced, most airports have either maximized available land or chosen to cease new construction. Only the Kansas City Downtown Airport has plans to add to its hangar inventory in 2009, with 96 new units scheduled for completion over a phased-in schedule.

[3] Lawrence Journal-World, August 13,1951

All of the airports surveyed are city-owned facilities with T-Hangar units owned and operated by the city. Each governing body chooses to establish its own rate structure based on construction costs, debt load, or its ability to buy market share through reduced market rates for unit rentals.

Economic Impact at LWC

In 1992, the Kansas Department of Transportation released a study it commissioned from KPMG Peat Marwick entitled: *"Economic Impact of Kansas Airports within the Kansas Aviation Systems Plan."*

This study compiled various data on the local impact of 150 public use airport facilities within Kansas. The table below indicates LWC's local impact and comparison with competing facilities around the state.

Airport	Airport Classification	Annual Impact
Wichita Mid-Continent	Primary - Commercial	$700,000,000
McConnell AFB, Wichita	Military Installation	$421,440,000
Olathe, New Century	Reliever	$154,220,000
Johnson Co. Executive, Olathe	Reliever	$ 53,910,000
Topeka Forbes Field	Commercial	$ 51,710,000
Manhattan Regional	Commercial	$ 46,510,000
Salina	Commercial	$ 14,460,000
Liberal	Commercial	$ 11,350,000
Topeka – Billard	General Aviation	$ 10,800,000
Great Bend	General Aviation	$ 10,640,000
Garden City	Commercial	$ 10,330,000
Hays	Commercial	$ 10,330,000
Lawrence Municipal	**General Aviation**	**$ 9,100,000**

Out of the 150 public use airports in Kansas, Lawrence Municipal Airport ranked 13th in local economic impact. In direct comparisons against general aviation facilities statewide, LWC had the fourth highest local impact.

While this study is a decade old, it clearly demonstrates the impact Lawrence Municipal Airport has on the Lawrence/Douglas County community, and the value aviation plays in creating a larger economic development engine at the airport. KDOT has plans to initiate another market study in 2010.

The economic impact of an airport is a measure of the benefits it provides to the community. These benefits include the jobs, wages, and expenditures that take place at the airport. They also include the effects of these expenditures in moving from hand to hand through the community, enhancing economic activity far from the airport itself.

Economic benefits also include expenditures made by those transient passengers who use the airport but spend their money at other locations within the community. Savings in time and money that the existence of the airport permits represent another economic benefit that resides with the community. Finally, economic benefits also include the intangible effect the airport has on business decisions to locate or remain in a specific area. Business location decisions based on airport availability are intangible and harder to identify and quantify. Unfortunately, these last benefits and the social values are difficult to measure.

Economic impact as a whole comprises direct, indirect, and induced impacts. Direct impact is associated with providers of services at the airport. These providers include the airport operator (public or private), FBOs, air carriers, freight haulers, concessionaires, government installations, educational institutions, military facilities, flight schools and maintenance operations, among others. The value of direct impact is the sum of all payroll, capital expenditures, operating and maintenance costs, taxes, and fees incurred by every provider of services.

Strictly speaking, direct impacts should represent economic activities that would not occur in the absence of the airport.

Indirect impact is associated with the users of airport services. These include both business and public users, government agencies, and aviation and non-aviation businesses. The value of this impact is the sum of the fees and charges paid, time and cost savings, and expense related to food, lodging, ground transportation, and similar outlays.

Induced impact is often called "the multiplier effect." It gets this name because a dollar, once spent, does not disappear but continues to move through the local economy until it is incrementally exported from the community. Each new dollar spent effectively multiplies its own economic effect. There have been a multitude of economic studies done to definitively establish this multiplier for various geographic areas and segments of the economy. These studies indicate that multipliers ranging from two to seven are appropriate for airport economic estimates. Because induced impact is the portion of an impact analysis most subject to controversy, it is a good idea to use a very conservative multiplier figure.

When residents or non-residents occupy city-owned T-Hangars, more than just the direct impact of rent changes hands. Renters will contribute indirect and induced impacts, in most cases, through:

- Fuel purchases from the FBO – with a flowage fee per gallon to the city and sales tax;
- Repair services or accessories from the FBO – sales tax;
- Potential car rental, lodging, food and personal shopping acquisitions – sales tax;
- Potential for property tax by registering aircraft in Douglas County; and
- Potential for commercial enterprises or recruitment of individuals to city.

Due to the City’s fiscal management philosophy, all revenues and expenses for the airport are lumped into the City’s general operating fund. This makes financial analysis on airport reve-

nues/expenses and direct/indirect monetary contributions to the community more tedious, if not impossible, to quantify.

The bottom line is development at the airport for private aircraft will pay dividends to the airport and city beyond the monthly unit rental.

FAA Impact

Annually, each airport sponsor (usually the city that owns the airport and surrounding property) submits a Capital Improvement Project (CIP) wish list of repairs or improvements for which it seeks FAA grant funds. Based on the FAA grant formula of 95 percent federal and 5 percent local match, this creates a competitive situation for airports to acquire funding.

However, the FAA has a systematic evaluation process for use in reviewing CIP eligible projects from sponsors. Two important variables used in this process are the number of based aircraft at the sponsor's facility, and number of annual flight operations.

According to the FAA's 5010-1 Master Record, dated June 30, 2007, LWC currently has 64-based aircraft, including 58 single-engine aircraft, four multi-engine aircraft and one jet and helicopter. The number of operations at LWC (including general aviation, air taxi, and military operations) is indicated in the 5010 Master Record for current year 2007 at 32,705 operations. A flight operation is defined as one take-off and landing. LWC is designated as an 'uncontrolled' airfield so hard counts of flight operations are not required.

Thus, the FAA review will include analysis of the number of based aircraft and operations at each sponsor airport when determining allocation of project grants. An airport with larger volume of based aircraft and operations has a better opportunity to secure grant funding for its project against an airport that is smaller in scope and operation.

A public use airport with larger volumes of based-aircraft is the clearest sign of that airport's vitality and commitment to services within the aviation community.

As LWC continues to see growth in private and business operations, project grants for rehabilitation and expansion projects will become more regular to accommodate the growing market demand for safe and efficient aviation facilities.

Construction and maintenance of City-owned T-Hangar units will contribute to orderly growth and increased FAA funding opportunities in future.

Previous T-Hangar Construction

In 1996, the city completed construction on a new 10-unit block of T-Hangars. This facility was constructed after the Aviation Advisory Board had pre-leased prospective tenants and developed a financial pro forma that indicated the project was fiscally sound and provides the city a positive Return on Investment (ROI).

Occupation was 100 percent from opening day and remains 100 percent leased today with little turnover in tenants. All tenants sign a 12-month lease agreement with the City. The same results occurred when the 2002 T-Hangars was built and leased with 24-month agreements.

Also, on the West side, private condo T-Hangars are located and will be removed at some point to create commercial property development opportunities at the airport. It is the Board's recommendation to move all private aircraft activity closer to the main terminal and FBO office for better service and traffic flow.

As with the 2003 T-Hangar project, this current project has attracted a lengthy waiting list (Fig. 4).

Proposed Location

The proposed location of new T-Hangar development is immediately south of the existing T-Hangar block constructed in 2003. This location will comply with FAA directives regarding no construction activity within their "no-build" boundary lines immediately west of the existing T-Hangar complex.

An airport layout diagram indicates the general area of proposed development.

The City Manager's office and the Aviation Advisory Board are in consensus that an access road will require construction to accommodate traffic west from Airport Road to the T-

Hangers and eliminate vehicular traffic on the active aircraft parking apron (blue area). FAA will not assist with funding for the project. This road location has been previously identified when the airport was platted.

The Board's position is that the city should invest in this construction as a cost of developing the airport infrastructure, which includes potential for commercial property development along this new street as diagramed in the airport platting process completed in October 2001. However, the Board does not require construction of this new road concurrent with the new T-hangars to make this project viable.

III. T-Hangar Financing Options

Previous Construction

The topic of financing construction for a new block of T-Hangars has been continuing for a long time. The Aviation Advisory Board has played mediator between interests of private aircraft owners desiring services at the airport, and the fiscal restraint of the City of Lawrence.

In Spring 2001, the City Commission instructed the Advisory Board to generate ideas on construction financing that would minimize an outstanding debt to the city while providing services to interested parties. The Board worked diligently and creatively to effect a "win-win" scenario.

After lengthy discussions, the Board concluded three options are possible to achieve construction of new T-Hangar units:

- City-funded construction, maintenance and ownership;
- Private-development construction, maintenance and ownership;
- Patron-financed and owned T-Hangar complex through property owners association;

Cornerstone Construction Company of Lawrence, Inc. presented a private development plan to the Board in October 2001. This "first-pass" concept was a proposed lease to purchase construction of a 20-unit nested T-Hangar complex.

The Board embraced this plan and asked the Airport Manager to circulate it within the City Manager's office for review and discussion. The City Manager's staff rejected this plan.

In 1996, when the 10-unit T-Hangar block was constructed, the Aviation Advisory Board prepared a pro forma of debt retirement and ROI. Based on construction costs and some allocation for maintenance, the scheduled debt repayment would end in 15 years after opening.

The scheduled debt retirement is tentatively April 2011, which creates a monthly cash surplus of $175,000 for other airport projects.

Industry standards state that properly constructed and maintained T-Hangars have a minimum useful life of 30-40 years[4].

The initial monthly rate of $160 wasn't adjusted until January 2002 to its current level of $175 a month.

Thus, in a perfect scenario, with a 15-year payback and 15 additional years of revenue, the complex should generate cash revenues that would handle maintenance and repairs to the T-Hangars in addition to contribute to new construction and services at the airport. This was the same financing philosophy adopted with the 2003 20-unit construction project, except a 20-year debt schedule was approved.

However, with all airport revenue and expenses lumped into the City's general operating fund, it is difficult to adequately track the availability of surplus funds for new projects.

Also a precedent has been established with the initial construction of both projects with maintenance and management of these units by the City. It is a city-sponsored service, and the Aviation Advisory Board and the City Manager's office are in agreement as recommending continuation of this city-sponsored service at the airport.

The Board is not aware of any city-owned airport in this region that has allowed private development of T-Hangars on its property. That policy allows the local municipality to completely control the operation, maintenance, legality and marketing of the property without outside influence or obligation.

Public vs. Private Ownership

The charge to the Aviation Advisory Board from the City Commission was direct: find a way to pay for this project that would not incur additional bonded debt on the city. That has not been an easy task. Unless the city of Lawrence is willing to pay cash for construction, then bonded debt is the only means to finance such a venture.

Another option the Board has reviewed is private development and ownership. To date the Board hasn't received any proposals and only limited inquiries into private development. One method to accurately gauge private-sector interest is to generate a "Request for Proposal" which would be sent to potential developers nationwide.

The Board is strongly centered on the policy of city-owned facilities on city property, especially where public use services are available. Aside from the financial elements, the Board is committed to providing quality services at competitive rates to airport users and believes, based on their aviation experiences that the city should remain the initiator and guardian of these services.

Development of these hangars for public use should be the responsibility of the city because:

[4] Based on various Manufacturers' claims and references

- The City of Lawrence, at-large, stands to gain the most financially with this project;
- The City of Lawrence can establish market rates at whatever level necessary to maintain occupancy or promote growth;
- The City of Lawrence has the expertise to properly maintain and manage this service;
- The City of Lawrence has the financial stability necessary to fund this project; and
- The City of Lawrence has the organizational stamina to make this project successful over the long run.

While the Board is not opposed to private development, if it helps complete our mission and results in the construction and occupancy of T-Hangars, the Board has the following concerns:

- Finding the proper philosophical match of business person and aviation interests;
- Financial stability of any private enterprise offering public services at the airport;
- Dealing with City of Lawrence requirements to complete the project while remaining financially viable and competitive to the marketplace;
- Ability to form a strong public-private relationship with the City of Lawrence;
- Sensitivity to market needs in the region and proper customer service;
- Ability and interest to become a "good citizen" of the airport community; and
- Does the enterprise have strong local ties to the community, or is it an outsider?

If private development is a final course for this project, then the City Commission, City Manager's staff and Aviation Advisory Board must perform extreme due diligence to satisfy all the pressing issues that will contribute to the success of this project.

A thorough analysis and rigorous "Request for Proposal" procedure combining features and attributes of various product manufacturers, user airports and service providers must be created to determine the best candidate for private development. While necessary, this process will already lengthen a severely delayed response to airport users, and potential tenants.

Finally, the Board is less enamored with private-citizen ownership of the T-Hangar through a property's owner association. While this type of owner development has occurred elsewhere nationwide, the Board is concerned about property maintenance, code enforcement, market values and oversight such a private development on public property would require. The Board believes the City of Lawrence should be owner and operator of any new T-Hangar construction activity.

The Board is quite comfortable and confident that the organizational structure and financial stability exist within the City of Lawrence to make this project successful. With proper planning, this project can be prepared and completed in July 2009.

Return on Investment

After discussions with various manufacturers, consultants and airport managers in the region, it has been established that $35,000 per finished T-Hangar is the working standard in today's market[5].

Included in this unit cost is:

- Enclosed hangar unit with electric bi-fold or rolled doors and access door;
- Electrical service to control electric bi-fold door;
- Entrance driveway to unit;
- All grading, groundwork and site preparation;
- Asphalt taxiway connected to unit driveway and exiting onto LWC apron

It is possible to achieve some cost reduction by filing FAA Form 7460 "Notice of Intent to construct on the Airport" and submitting a CIP request for funding assistance on the common taxiway. If funds are available and selection criteria met, FAA has been known to fund the construction of common taxiways along T-Hangars in other regions of the country. The 95-5 split can be converted into a tremendous cost savings that can be passed along in either lower rental rates to airport users of T-Hangars, or construction debt.

In any bidding process, the RFP should specifically break out the costs between site-preparation vs. material/installation cost of the T-Hangar units. Two separate companies can bid and successfully complete both components of the project if needed.

While the city historically attempts to retire any public debt within 6-10 years, some projects have been financed through 15 years and, in limited applications, 20 years. In the Board's financial models, 20 years created the balance of a fair payback to the city and meeting current market prices for potential users.

In our final analysis, the Board reiterates its position that the City of Lawrence should fund and operate new T-Hangar units for airport users.

A financial model demonstrating the 20-year payback and rental rate structure is located in the back of this analysis (Fig. 3).

While the City does incur the risk of the bonded debt, the financing of the debt stems 100 percent from the users of the T-Hangars. Therefore, the risk is significantly reduced because the users are paying off the debt while the City administers the payback, collects interest on the bonds and rent increases over the building's life to assist debt financing.

[5] Based on consultants, airport operators and manufacturers figures.

Summary

With market forces converging as the Lawrence Municipal Airport continues to grow and attract aviation business, a window of opportunity has been created for the City of Lawrence to capture a larger share of the Northeast Kansas aviation market.

The Aviation Advisory Board is recommending to the City Commission a strategy to create, discuss and implement an action plan that will construct 20 new T-Hangar units at the airport in July 2009. The Board's recommendations are:

- Create an environment of positive growth and pro-active development at the airport;
- Formulate a specific RFP for the construction and development of 20 T-Hangars, with separate costing for site-work and Hangar materials/construction. This program should result in construction beginning in April 2009 or sooner.
- Remain cognizant of the prevailing market rental rates when costing this project. If the City prices itself out of the existing market rate structure, then the project will fail or suffer from vacant units.
- Inquire with FAA about funding availability in Summer 2009 for taxiway funding to optimize economies of scale; use any cost savings to maintain lower rental rates or lower bonded debt.
- Solicit firm leasing agreements with potential Hangar renters, and advertise in area aviation circles to create market demand, that should include agreement to 24-month leases with detailed rent schedules, and deposit of one month's rent to secure a position on the waiting list for hangar rental.

The Board is firm in its resolve to provide the best operating environment for aviation users at the Lawrence Municipal Airport. We request that an open, vigorous discussion and exchange of ideas be conducted with regards to the construction of T-Hangars and the City's participation as owner.

While we are proud of our accomplishments to expand the airport's facilities with expanded parking apron and extended, improved runways, we have received regular criticism from the private pilots that feel disenfranchised from the airport community because of a lack of rental hangar space for their aircraft. These individuals contribute just as much to a community airport's vitality than the larger, transient business jets which visit our airport.

Not only will the T-Hangars be 100 percent funded by user fees, but generate a return on investment for the city at the conclusion of its lifecycle. Our model (Fig. 3) serve as a 'first-pass' but are very realistic and account for:

- P&I payment: including variance for 10% vacancy & phased rent increases
- Monthly electric usage
- Maintenance/Operations
- Insurance

Using Chart 2 in the Figure 3 example, an initial monthly rental would breakout like this:

P&I:	$186.00
Utility:	$ 10.00
Maint./Operations	$ 10.00
Insurance	$ 20.00
Property Tax*	$ 0.00
Monthly Rent:	**$226.00**

In this rent scenario, a four percent annual rent increase is planned over the 20-year financing period. Also, a 5% vacancy rate has been built into the payback projections so debt repayment can continue unaffected even if the City loses one or two units of rental income at anytime.

This is a "win-win" scenario for aviation users and the City, which will benefit financially beyond the monthly rental payments as described earlier. However, the potential for construction cost savings are presenting a limited 'window of opportunity' so conversations and action must occur promptly if we choose to minimize our construction costs.

*Kansas statute 79-201q allows for land and/or property essential to the operation of an airport by a political subdivision to be exempt from property tax payments/collection. The airport sponsor will have to file an exemption request with the Kansas Board of Tax Appeals (BOTA) to earn the property tax exemption. The City of Lawrence filed a similar appeal in 2003 with BOTA to gain tax exemption on the 20-units completed and placed into consumer service.

IV Appendix:

Fig. 1

City of Lawrence

Aviation Advisory Board

Non-Binding
Letter of Intent for Lease of T-Hangar

Background: The Aviation Advisory Board of the City of Lawrence is gauging public interest for the construction of additional hangar facilities at the Lawrence Municipal Airport. The Board's initial emphasis is the construction of additional T-Hangar facilities to accommodate private aircraft operating from the Airport. This non-binding Letter of Intent demonstrates your interest in renting T-Hangar space at the airport and will help gauge public interest before committing city tax dollars to construction activities. As of this time, no definitive costs have been determined for this project and rental terms may vary from the working range stated below.

I, the undersigned aircraft owner, am interested in a lease agreement with the Lawrence Municipal Airport for T-Hangar rental in the tentative amount of $185.00 - $195.00 per month on a 12-month contract.

At this time, my interest is not binding but an expression of my commitment to Lawrence aviation that will help the Aviation Advisory Board and Lawrence City Commission gauge interest before committing tax dollars to construction. Also, while not binding, my interest will place me on a waiting list of prospective renters should construction begin on the Hangars.

Signed and submitted, this ____ of _____ , 1999.

_____ (Print name)

_____ (Sign name)

_____ (address)

_____ (City, ST, Zip)

_____ (Aircraft Type, ID)

Lawrence Area T-Hangar Rental Rate Survey

Location	Identifier	Phone #	Number of T-Hangars	Rate per Month	Occupancy (%)	Wait List	Construction Financing	Comments
Lawrence Municipal	LWC	785-842-0000						
Kansas City Downtown	MKC	816-471-4946	40	$275	100%			Building 96 new T-Hangars and tearing down the 40 old ones, part of large capital project. Didn't have a cost breakout for the T-Hangars, might be available next month. Doesn't know price of new hangars yet, but says that so far they are not pricing for location.
			96	unknown- will be higher than $275.	100% (likely)	not sure yet if there will be a wait list	unique- much of it coming from KCI.	
Johnson County Executive	OJC	913-715-6000	218 total	$235	100%	5-6 years	if planned, general revenue	no plans to build hangars
New Century	IXD	913-715-6000		$280	100%		or g.o. bonds	
Gardner, KS	K34	913-856-8659	5 open (no doors)	$65				built the $210 a month hangars one year ago.
			12 old	$81				- financed through general obligation, paying back
			20	$105				through principal and interest.
			20	$135				-cost of construction was $995,000 for 20 hangars
			18	$185				- new hangars are enclosed with concrete floors
			20	$210			general obligation bonds	-noted that most people on waiting list are from
			95 total	$143 average	100%	5-6 years		Kansas City suburbs, as far north as Prairie Village.
Ottawa, KS	OWI	785-242-5310	4	$150	100%	long	nothing planned	
Topeka Forbes	FOE	Call Kansas	"most"	$85	100%	25 people, not sure of	none	-no plans for new t-hangars, but they're desired by the
Topeka Billard	TOP	Air Center	"a couple"	$200	100%	time- "random" for		Air Center.
		785-234-2602	200 total	$100	100%	selection		- average price is $100
Manhattan Regional	MHK	785-587-4560	6	$95				A Row (864 sf)
			16	$130				B Row (864 sf)
			6	$155				D Row
			6	$175				H2 to H7 (567 sf)
			6	$200				H1 and H8 (666 sf)
			1	$280				
			41 total	$149 Average	100%	12 people	no construction planned	
Atchison, KS	K59	913-367-1862	15	$65	100%	10 years	nothing yet	-waiting for E.D. Board to get formed so that they can work with them to get a plan inplace. No funding. - 12 hangars slated for construction in 2002 were not built.
Emporia, KS	EMP		28 single engine	$90-$100	100%	several people		
			6 twin engine	$120-$175	100%			
Independence, KS	IIB	620-332-2531	20 total	$125	100%	20 people	no construction planned	-hangars have been full for "a long time"
				$150	100%			- very little turnover
Clay County Airport, MO	GPH	816-407-3390	48 single engine	$290	98%	none	planned, but no money	- requests for larger hangars than what are available.
			14 twin engine	$320	100%		available	- would like to build them (60 feet) but no financing.
			14 "shade ports"	$180	100%			- waiting list disappeared due to economic slowdown
St. Joseph, MO	STJ	816-271-4886	10 Old (c. 1990)	$135	100%	about a dozen people		- wait list difficult to time, says it is likely several years.
			24 New (c. 2000)	$200	100%			- master plan talks of building new T-hangars, still
			2 Larger end units	$220	100%			in planning stages though.
Excelsior Springs, MO	3EX	816-630-2369		$95				phone was not working; e-mailed; no response.
East Kansas City, MO	3GV	816-229-8868		$175-$200	100%		no plans for public rentals	all privately owned, enclosed, "nested"
Harrisonville, MO	MO85	816-380-1075	20	$105				no update, on vacation this week
			20	$210				
Lee's Summit, MO	LXT	816-969-7492	40	$96	88%	none	planned, but no financing yet	Open "T"
				$38				these are ramp tie-downs
				$200				40 x 32 size, sliding doors
				$280				40 x 29 size, electric doors
				$309				42 x 33, electric doors
				$352				50 x 40, electric doors
				$538				53.5 x 48, electric doors
			75	$343	100%	none		mid-range for enclosed t-hangar

Source: Roger Zalneraitis, Economic Development Coordinator/Planner, city of Lawrence

Funding Options for
the T-Hangar Construction Project
700K

Date	Principal Balance	Principal Payment	Coupon	Coupon Interest	Interest Payment	Total P&I	Monthly Rent Pmt	Rental Rate Projections: Lease Revenue	Interest Revenues	Total Revenues	Debt Service Payment	Annual Surplus		Cumulative Surplus (Deficit)
							4%							
	700,000.00													
12/31/2009	691,166.69	8,833.31	4.750%	420	11,304.81	20,138.11			9,041.67	9,041.67	20,138.11	(11,096.45)		(11,096.45)
12/31/2010	669,241.09	21,925.60	4.750%	1,041	33,494.83	55,420.44	186.00	42,408.00	821.66	43,229.66	55,420.44	(12,190.78)	78%	(23,287.23)
12/31/2011	646,257.27	22,983.82	4.750%	1,092	32,453.37	55,437.18	186.00	42,408.00	821.66	43,229.66	55,437.18	(12,207.53)	78%	(35,494.76)
12/31/2012	622,151.13	24,106.15	4.750%	1,145	31,361.64	55,467.79	186.00	42,408.00	821.66	43,229.66	55,467.79	(12,238.13)	78%	(47,732.89)
12/31/2013	596,874.66	25,276.46	4.750%	1,201	30,216.59	55,493.06	191.00	43,548.00	843.74	44,391.74	55,493.06	(11,101.32)	80%	(58,834.20)
12/31/2014	570,371.09	26,503.57	4.750%	1,259	29,015.96	55,519.53	191.00	43,548.00	843.74	44,391.74	55,519.53	(11,127.79)	80%	(69,961.99)
12/31/2015	542,580.83	27,790.26	4.750%	1,320	27,757.04	55,547.31	191.00	43,548.00	843.74	44,391.74	55,547.31	(11,155.56)	80%	(81,117.56)
12/31/2016	513,441.41	29,139.41	4.750%	1,384	26,437.00	55,576.42	198.64	45,289.92	877.49	46,167.41	55,576.42	(9,409.01)	83%	(90,526.56)
12/31/2017	482,887.25	30,554.17	4.750%	1,451	25,052.88	55,607.05	206.59	47,101.52	912.59	48,014.11	55,607.05	(7,592.94)	86%	(98,119.50)
12/31/2018	450,849.83	32,037.41	4.750%	1,522	23,601.56	55,638.97	214.85	48,985.58	949.10	49,934.67	55,638.97	(5,704.30)	90%	(103,823.80)
12/31/2019	417,257.06	33,592.77	4.750%	1,596	22,079.78	55,672.56	223.44	50,945.00	987.06	51,932.06	55,672.56	(3,740.50)	93%	(107,564.30)
12/31/2020	382,033.44	35,223.62	4.750%	1,673	20,484.13	55,707.74	232.38	52,982.80	1,026.54	54,009.34	55,707.74	(1,698.40)	97%	(109,262.70)
12/31/2021	345,099.79	36,933.65	4.750%	1,754	18,811.00	55,744.65	241.68	55,102.11	1,067.60	56,169.72	55,744.65	425.06	101%	(108,837.64)
12/31/2022	306,373.08	38,726.71	4.750%	1,840	17,056.66	55,783.36	251.34	57,306.20	1,110.31	58,416.50	55,783.36	2,633.14	105%	(106,204.50)
12/31/2023	265,766.29	40,606.80	4.750%	1,929	15,217.14	55,823.93	261.40	59,598.45	1,154.72	60,753.16	55,823.93	4,929.23	109%	(101,275.27)
12/31/2024	223,188.12	42,578.17	5.000%	2,129	13,288.31	55,866.48	271.85	61,982.38	1,200.91	63,183.29	55,866.48	7,316.81	113%	(93,958.46)
12/31/2025	178,542.61	44,645.50	5.000%	2,232	11,159.41	55,804.91	282.73	64,461.68	1,248.95	65,710.62	55,804.91	9,905.72	118%	(84,052.74)
12/31/2026	131,729.91	46,812.70	5.000%	2,341	8,927.13	55,739.83	294.04	67,040.15	1,298.90	68,339.05	55,739.83	12,599.22	123%	(71,453.53)
12/31/2027	82,644.54	49,085.37	5.000%	2,454	6,586.50	55,671.86	305.80	69,721.75	1,350.86	71,072.61	55,671.86	15,400.75	128%	(56,052.78)
12/31/2028	31,176.21	51,468.33	5.000%	2,573	4,132.23	55,600.56	318.03	72,510.62	1,404.89	73,915.51	55,600.56	18,314.95	133%	(37,737.83)
12/31/2029	-	31,176.21	5.000%	1,559	1,558.81	32,735.02	330.75	75,411.05	1,461.09	76,872.13	32,735.02	44,137.11	235%	6,399.28
						1,109,996.78		1,086,307.19	30,088.87	1,116,396.06	1,109,996.78	6,399.28	101%	

Interest Revenue shown for 9/1/2009 is on Project Funds
Interest Rate for Earnings on Bond Funds 3.875%
Assumes an principal/interest payment will be due 4 months after issuance.

Principal Balance	700000
Initial rental Rate	240
Occupancy Rate	95%
Corner hangers add' chg	12
occupancy month in 2010	1

1 jan
2 feb
3 mar
4 apr
5 may
6 jun
7 jul
8 aug
9 sep
10 oct
11 nov
12 dec

Summary of Average Monthly Rental Rates to Tenates

Rate Effective	Lease Revenue for 20 Hangars	Base Avg Rate	Utilities	Maint.	Insurance	Final Rate	Total Rent Collected
12/31/2010	42,408.00	186.00	10	10	20	226.00	54,240.00
12/31/2011	42,408.00	186.00	10	10	20	226.00	54,240.00
12/31/2012	42,408.00	186.00	10	10	20	226.00	54,240.00
12/31/2013	43,548.00	191.00	10	10	20	231.00	55,440.00
12/31/2014	43,548.00	191.00	10	10	20	231.00	55,440.00
12/31/2015	43,548.00	191.00	10	10	20	231.00	55,440.00
12/31/2016	45,289.92	198.64	15	15	20	248.64	59,673.60
12/31/2017	47,101.52	206.59	15	15	20	256.59	61,580.54
12/31/2018	48,985.58	214.85	15	15	20	264.85	63,563.77
12/31/2019	50,945.00	223.44	15	15	20	273.44	65,626.32
12/31/2020	52,982.80	232.38	15	15	20	282.38	67,771.37
12/31/2021	55,102.11	241.68	15	15	20	291.68	70,002.22
12/31/2022	57,306.20	251.34	15	15	20	301.34	72,322.31
12/31/2023	59,598.45	261.40	15	15	20	311.40	74,735.21
12/31/2024	61,982.38	271.85	18	25	20	334.85	80,364.61
12/31/2025	64,461.68	282.73	18	25	20	345.73	82,974.40
12/31/2026	67,040.15	294.04	18	25	20	357.04	85,688.57
12/31/2027	69,721.75	305.80	18	25	20	368.80	88,511.32
12/31/2028	72,510.62	318.03	18	25	20	381.03	91,446.97
12/31/2029	75,411.05	330.75	18	25	20	393.75	94,500.05

Actual Rental Rates Recommended by Hangar type

Effective	8 Corner Units		12 Inside Units		Total
Date	Rate	Revenue	Rate	Revenue	Revenue
12/31/2010	238.00	22848	218.00	31392	54,240.00
12/31/2011	238.00	22848	218.00	31392	54,240.00
12/31/2012	238.00	22848	218.00	31392	54,240.00
12/31/2013	243.00	23328	223.00	32112	55,440.00
12/31/2014	243.00	23328	223.00	32112	55,440.00
12/31/2015	243.00	23328	223.00	32112	55,440.00
12/31/2016	260.64	25021.44	240.64	34652.16	59,673.60
12/31/2017	268.59	25784.22	248.59	35796.33	61,580.54
12/31/2018	276.85	26577.51	256.85	36986.26	63,563.77
12/31/2019	285.44	27402.53	265.44	38223.79	65,626.32
12/31/2020	294.38	28260.55	274.38	39510.82	67,771.37
12/31/2021	303.68	29152.89	283.68	40849.33	70,002.22
12/31/2022	313.34	30080.93	293.34	42241.39	72,322.31
12/31/2023	323.40	31046.08	303.40	43689.12	74,735.21
12/31/2024	346.85	33297.85	326.85	47066.77	80,364.61
12/31/2025	357.73	34341.76	337.73	48632.64	82,974.40
12/31/2026	369.04	35427.43	349.04	50261.14	85,688.57
12/31/2027	380.80	36556.53	360.80	51954.79	88,511.32
12/31/2028	393.03	37730.79	373.03	53716.18	91,446.97
12/31/2029	405.75	38952.02	385.75	55548.03	94,500.05

Fig. 4

Lawrence Municipal Airport
T-Hangar Waiting List

	Name	Contact info	Date called	Comments
1	Rick Stitt	913-538-5456	01/30/06	
2	Gunnar Berg	816-329-4141 913-780-5673	02/20/06	Gunnar.berg@faa.gov
3	Cory Miller	913-961-7983	03/06/06	corymmiller@earthlink.net left message 2.19.07
4	Sandel Blackwell	913-530-5035	03/16/06	sandelb@yahoo.com
5	Allen Ott	785-542-2568	04/04/06	allenott@earl.uk.net
6	Lloyd Hetrick	785-842-0000	04/22/06	
7	Kay Brunner	785-258-3717	05/24/06	
8	Tom Sites	913-789-9822	06/23/06	aztecpilot@aol.com
9	Bob	913-523-3557	07/31/06	
10	Carl McElwee	785-843-4164	08/01/06	cmcelwee@ku.edu
11	Richard Stall	308-340-0840	08/15/06	richardstall@mccooknet.com
12	Dave Baker	913.680.0304	11/20/06	Mcsamm2000@yahoo.com (c-172)
13	Cliff Gill	913.620.7780	12/18/06	cliff@airbornesceintific.com
14	Daniel Hedge	913.579.2790	01/05/07	kcpilot@kc.rr.com
15	John Anderson II	Office 913.715.3901	01/07/07	Cell phone 816.392.2968 Call anyway=====
16	David Anderson	816.823.7189	01/07/07	
17	Tom Bowles	913.642.5707	05/04/07	
18	Dan Born	785.865.1300 785.865.4134	05/14/07	dpborn@aol.com Cessna cardinal
19	Jeremy Hull	913-302-0595	05/17/07	Jeremy@inixlords.com
20	Joe Wahl	312.7784	05/21/07	Joewahl4@hotmail.com Cessna 182
21	Dick Prater	913.207.4597	06/01/07	Cesna 150
22	Spike Santee	316.841.5754	06/12/07	Cesna 182 skyliner
23	Ben JoCovie	913.205.5949	06/18/07	Light sport
24	Matt Burch	913.440.5344 785.550.3571	07/10/07	
25	Noel Strong	785.554.3990	08/15/07	Globe Swift nstrong01@msn.com
26	Bruce Ruthchild	785.615.1523	08/22/07	
27	Greg Smith	636.447.4024	08/22/07	
28	Patrick Lee	Cell 913.205.1674 Home 913.745.4115	10/09/07	Experimental vr-6 Plee6511@hotmail.com
29	Eric Dunban	816.876.7363	10/11/07	Eric.duncan@jedun.com
30	Mark Hulse	785.865.0540	11.26.07	
31	Richard Houge	423.3765	11.26.07	
32	Rex Miller	785.341.5411	12.0707	PA 22 20 rmiller1987@hughes.net
33	George Hawkins	281.565.7366	01/10/08	Hawk-g@peoplepc.com
34	Dustin Wyer		02.01.08	Cherokee 6 Wyer, Dustin Allen [dawyer@ku.edu]
35	Dan Cool	913.449.4747	2.08.08	
36	David Holland	816.340.3201	02.20.08	Wants to sell hanger
37	Scott Robinson	785.887.3922	02.26.08	scottr@sunflower.com
38	Tom Heidewald	316.204.0191	03.20.08	tomheide@aol.com
39	Josh Crum	913.706.0743	04.22.08	172 size joshcrum@mindspring.com
40	Kraig Larosh	913.449.5146	06.16.08	kraiglarosh@gmail.com Cessna 172
41	David Holland	816.340.3261	06.06.08	

*declined but wants to remain on list
Dave Baker called 11-20-06 10:20AM; hung up as soon as he learned no hangars were available.

Our products

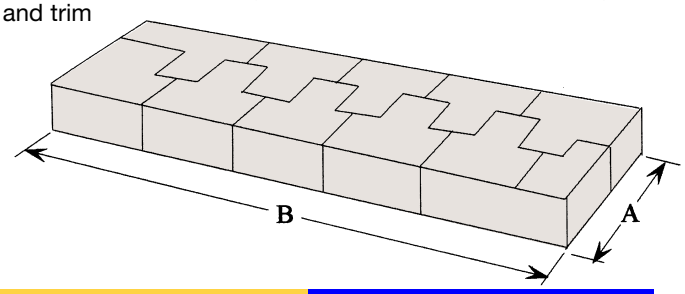
EREC-TA-TUBE

We've earned our wings

Aircraft Hangars

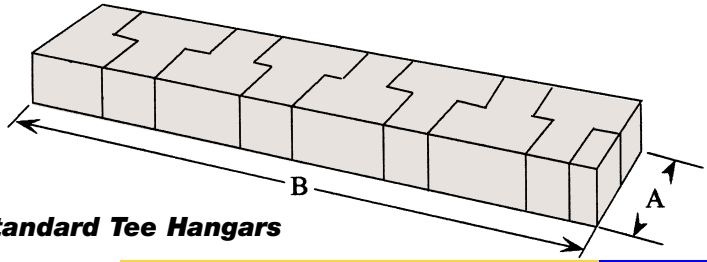
All Hangar Packages Include:

- All steel structure with electric bi-fold doors
- 26-gauge exterior sheeting and trim
- 29-gauge interior partition sheeting
- Self-drilling and tapping screws
- 20-year warranty on sheeting and trim
- Engineer-certified structural drawings



Nested Tee Hangars

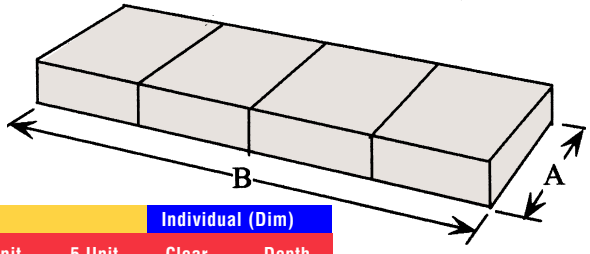
		Overall Length "B"					Individual Unit (Dimension)			
Model Number	Width "A"	2 Unit	4 Unit	6 Unit	8 Unit	10 Unit	Clear Door	Depth	Wing Depth	Tail Width
N51-42	51'0"	63'0"	105'0"	147'0"	189'0"	231'0"	41'6"x12'0"	33'0"	18'0"	21'0"
N54-42	54'0"	63'0"	105'0"	147'0"	189'0"	231'0"	41'6"x12'0"	33'0"	21'0"	21'0"
N60-45	60'0"	67'6"	112'6"	157'6"	202'6"	247'6"	44'6"x14'0"	39'0"	21'0"	22'6"
N60-48	60'0"	72'0"	120'0"	168'0"	216'0"	264'0"	47'6"x14'0"	39'0"	21'0"	24'0"
N72-60	72'0"	90'0"	150'0"	210'0"	270'0"	330'0"	59'6"x18'0"	48'0"	24'0"	30'0"



Standard Tee Hangars

		Overall Length "B"					Individual Unit (Dimension)			
Model Number	Width "A"	2 Unit	4 Unit	6 Unit	8 Unit	10 Unit	Clear Door	Depth	Wing Depth	Tail Width
S36-42	36'0"	73'6"	136'6"	199'6"	262'6"	325'6"	41'6"x12'0"	36'0"	18'0"	21'0"
RS36-42*	36'0"	73'6"	136'6"	199'6"	262'6"	325'6"	41'6"x12'0"	36'0"	18'0"	21'0"
S42-45	42'0"	78'9"	146'3"	213'9"	281'3"	348'9"	44'6"x14'0"	42'0"	21'0"	22'6"
RS42-45*	42'0"	78'9"	146'3"	213'9"	281'3"	348'9"	44'6"x14'0"	42'0"	21'0"	22'6"
S42-48	42'0"	84'0"	156'0"	228'0"	300'0"	372'0"	47'6"x14'0"	42'0"	21'0"	24'0"
S48-60	48'0"	105'0"	195'0"	285'0"	375'0"	465'0"	59'6"x18'0"	48'0"	24'0"	30'0"

* Available with Bottom Rolling Doors



Rectangular Hangars

		Overall Length "B"					Individual (Dim)	
Model Number	Width "A"	1 Unit	2 Unit	3 Unit	4 Unit	5 Unit	Clear Door	Depth
R33-42	33'0"	42'0"	84'0"	126'0"	168'0"	210'0"	41'6"x12'0"	33'0"
R41-45	41'0"	45'0"	90'0"	135'0"	180'0"	225'0"	44'6"x14'0"	41'0"
R41-48	41'0"	48'0"	96'0"	144'0"	192'0"	240'0"	47'6"x14'0"	41'0"
R52-56	52'0"	56'0"	112'0"	168'0"	224'0"	280'0"	55'6"x16'0"	52'0"
R62-56	62'0"	56'0"	112'0"	168'0"	224'0"	280'0"	55'6"x18'0"	62'0"
R62-65	62'0"	65'0"	130'0"	195'0"	260'0"	325'0"	64'6"x18'0"	62'0"

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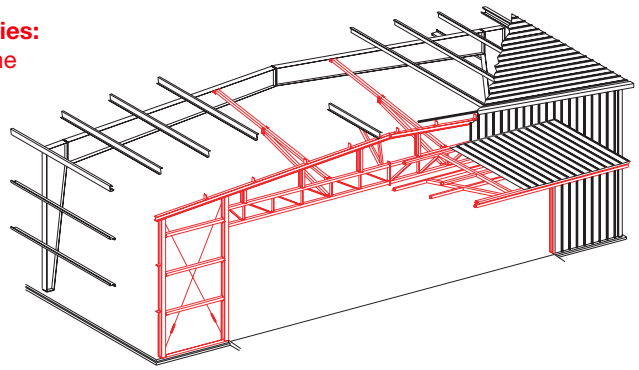
Bi-Fold Door Systems

End Wall Door System

This door sytem is designed to replace Building Manufacturer's end wall frame. Accommodates door sizes up to 80' x 20' clear.

Erect-A-Tube, Inc. supplies:
- Complete end wall frame
- Columns
- Electric bi-fold door
- All necessary end wall girts
- Wind struts

Bldg. Mfr. supplies:
- End wall sheeting
- Door sheeting & fasteners
- Door trim

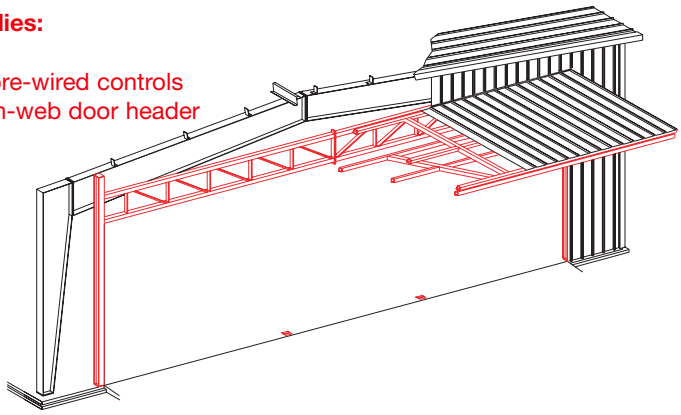


Self Framed Door System

This door system is designed to be installed inside Building Manufacturer's framed opening. Accommodates door sizes up to 80' x 20' clear.

Erect-A-Tube, Inc. supplies:
- Door framing
- Electric operator with pre-wired controls
- Non-load bearing, open-web door header
- Two wide flange door jamb columns

Bldg. Mfr. supplies:
- Framed opening
- Wind bracing
- Door sheeting & fasteners
- Door trim

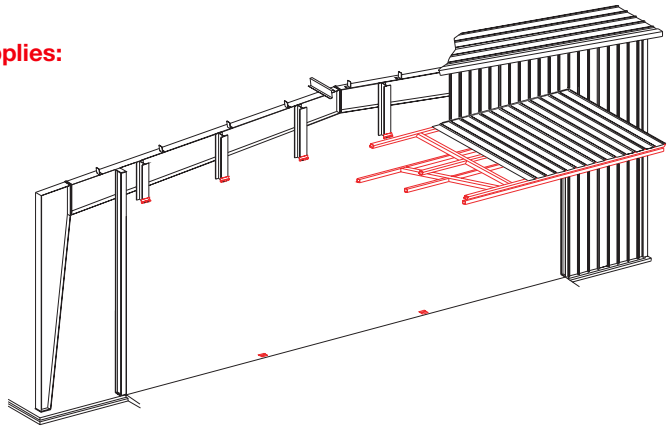


Self Contained Door System

This door system is designed to be installed on Building Manufacturer's ridged frame buildings. Accommodates door sizes up to 60' x 18' clear.

Erect-A-Tube, Inc. supplies:
- Door framing
- Electric operator with pre-wired controls
- Hardware

Bldg. Mfr. supplies:
- Door header
- Door columns
- Door sheeting & fasteners
- Door trim



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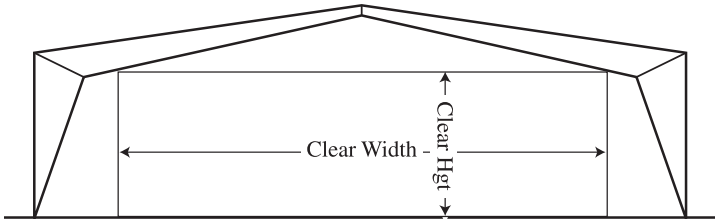
Bottom Rolling Doors

Roll King Door

Engineered to satisfy door requirements up to 160’ wide x 32’ high.

Erect-A-Tube, Inc. supplies:

- Door structural
- Bottom rails & ties
- Top guide rails
- Bottom rollers
- Top guide rollers
- Door hardware
- Astragals & seals
- Bolts
- Operators & controls (opt.)
- Power rail (opt.)
- Safety edge (opt.)
- 3070 Interlocking walk door pkg. (opt.)
- Engineer-certified drawings



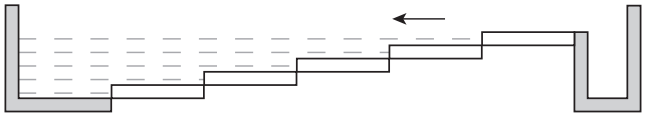
Bldg. Mfr. supplies:

- Framed opening (Deflection -3”, Uplift +2”)
- Door pockets
- Track supports
- Soffit
- Wind braces
- Track support hangers
- Door sheeting, trim & fasteners

LGR Door (Light Gauge Rolling)

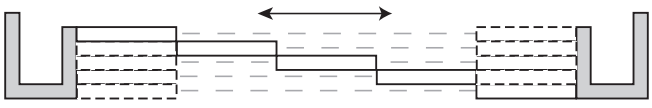
Engineered to satisfy door requirements up to 100’ wide x 18’ high.

Closing Options



Single-Directional System

Bi-Directional System



Multi-Directional System

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LIMITED WARRANTY
GENERAL PRODUCTS

Erect-A-Tube, Inc. (EAT) warrants its products to be free of defective material and workmanship under normal use and service for a period of one (1) year from the date of delivery of the product to the original purchaser, provided the product is assembled, installed, and operated or used in accordance with EAT instructions. This limited warranty does not apply to loss, damage, or failure when it is determined by EAT that such loss, damage, or failure is the result of product alteration, misuse, accident, or negligence, and does not apply to replacement of parts when such replacement is part of normal maintenance. EAT shall not be liable by virtue of the warranty or other wise for any indirect, special, consequential or liquidated loss, damage or penalty resulting from use, or loss of use, of its product and make no warranty, express or implied, with respect to merchantability for fitness for a particular purpose. Installation, erection or servicing of the equipment, or supervision thereof by EAT or its authorized agent, if specified or requested by Purchaser, shall be governed by EAT's Conditions of Service. EAT does not warrant electrical motors, electric equipment, tires, or any other item not manufactured by EAT as these are warranted by their respective manufacturers. Warranty is limited to prepaid, no-charge, replacement of claimed defective parts or products and does not include payment for labor or other expenses. Request for warranty consideration must be made through an authorized representative of EAT and any article or product claimed to be defective under this warranty must be returned (if requested by EAT) freight prepaid, to EAT, Harvard, Illinois. EAT has a continuing policy of product improvements and reserves the right to make product changes without incurring an obligation to make changes to products previously sold.

ERECT-A-TUBE, INC.

By:_____
Kenn B. Shelton, Jr., President

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