RIDER MEZZANINE LIFTS:

How to get personnel and material from ground level to mezzanine level quickly, safely and efficiently.

White Paper

Scissors lifts have been moving men and material from ground level to higher elevations for more than 60 years. They offer a distinct advantage over vertical reciprocating conveyors because people ride industrial scissors lifts along with the materials that they are moving. This greatly enhances the utility of the mezzanines. The cost is very competitive with VRC's and the installation can offer significant savings because industrial scissors lifts come from the factory fully assembled instead of in kit form like elevators and some vertical reciprocating conveyors so they avoid costly field assembly by elevator installers. Only the gates and enclosures need to be assembled on site.

There are three main features that make industrial scissors lifts different from other kinds of lifts:

1. Scissor lifts are fully assembled at the factory and not field assembled from kits.

2. Scissors lifts have no external guide rails and/or pulley mechanisms to entangle riders. All the stability and lifting is provided by the scissors lift mechanism beneath the platform.

3. Rider scissors lifts use constant pressure push buttons which means the rider operator is in constant control of the lift movement.

Governing codes?

Building commissioners and elevator inspectors have been put in a difficult position because there have been a lot of myths and confusion about appropriate safety codes and the following facts can help shed light on the subject:

1. The writers of ASME A17.1, the national elevator code, stated clearly in their letter of interpretation #11 for November 1986 - April 1987 in response to inquiry 86-46, that in regard to scissors lifts "since the equipment does not move in guide rails, it is not an elevator defined in section 3 and is not within the scope of A17.1".

2. ASME A18.1 the "Safety Standard For Platform lifts and Stairway Chairlifts" states clearly in the first sentence of the first paragraph of the standard that it applies to "lifts intended for transportation of mobility impaired person only", which means it applies to handicap lifts only.

3. The writers of ANSI B20.1, in their forward, state "The use of recommendations and guidelines …Guidelines for Vertical Reciprocating Conveyors published by the Conveyor Product Section of The Material Handling Institute in conjunction with ASME B20.1 is encouraged". The Applications Guideline for Vertical Reciprocating Conveyors that is referred to states clearly in section 1.2 Equipment Not Covered, that industrial scissor lifts as covered in ANSI MH29.1 are not covered in their guideline. There is no further reference in B20.1 to scissor lifts.

This means that without a doubt ANSI MH29.1 is the governing code for industrial scissors lifts. Individuals who try to apply the first three codes are contradicting the writers of those codes.

Most codes provide several ways to comply with the safety requirements. Although industrial scissors lifts are clearly not elevators, most municipalities will have elevator inspectors examine these applications. Therefore we have talked with elevator inspectors to design a common sense configuration that conforms to the code, ensures the safety of the operator riders, and minimizes the installed cost of the system. This is the system that was put on display at PROMAT in March of 2011 and can be seen on our website at www.advancelifts.com.

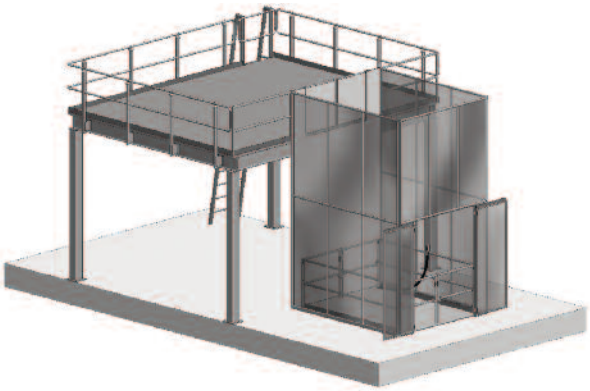
The essential ingredients of a proper mezzanine lift are as follows:

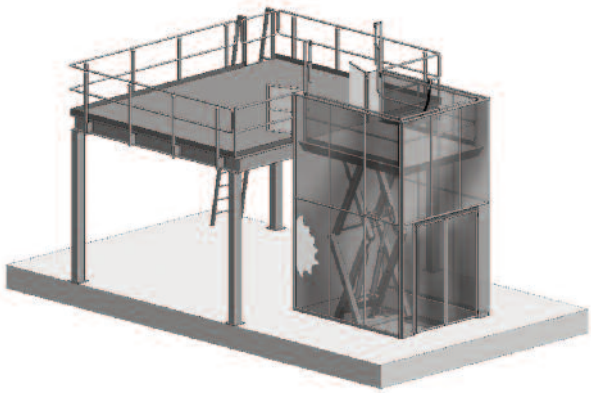
1. A properly configured industrial scissor lift. The platform should be equipped with bevel toe guards and 42" high guardrails with mid rails and 4" toe plates. The lift platform should have electrically interlocked gates that prevent lift movement unless the lift gates are closed. The interlocked gates are not required by code, but will be a common sense addition required by most municipalities and/or elevator inspectors. The unit should have proximity switches or limit switches for each level. The control shall be a constant pressure pushbutton that the rider operator must keep depressed to maintain movement of the lift (the use of call/send buttons are not allowed with riders on the lift). The lift should also be equipped with an emergency down valve on the power unit to lower the lift in case of power failure. Again this is not a code requirement, but most municipalities or inspectors will require it.

2. A smooth mezzanine fascia. The entire surface of the mezzanine adjacent to the lift from ground level to the top of the guardrail on the upper level must be equipped with a smooth face to eliminate shear points. This may be wallboard, polycarbonate GP sheets or fine mesh. Interlocked doors & windows are allowed.

3. An enclosure system. The sides not adjacent to the mezzanine must be enclosed from ground level to the height of the highest guardrail in the fully raised position. The guardrail on the mezzanine and the access gates on the enclosure must be electrically interlocked to prevent lift movement when the gates or doors are opened and mechanically locked so that they can not be opened unless the lift platform is present. The gap between the platform and the mezzanine should be 1". The gap between the platform and the enclosure on all other sides should be approximately 3" to 4". This gap requirement is not by code, but another common sense requirement required by most inspectors.

The configuration should look like this:





Note that Advance lifts will always supply a configuration drawing after receipt of order so that users and inspecting authorities can make comments before the equipment is built and shipped.

What about inspections of these lifts?

We studied elevator inspection forms from several states and realized that the forms closely followed the underlying elevator code. So we developed an inspection form following the same reasoning based on the latest draft of ANSI MH29.1 which is in the final stages of the revision process and should be released by this summer. This form was then reviewed by elevator inspectors and further refined into its current form which we call the "Inspection Checklist For Industrial Scissors Lifts At Mezzanines" form AL-2010 Rev 1. This should be a big help to elevator inspectors and municipal building commissioners around the country. The forms are available on our website, advancelifts.com.

Some people have referred to our mezzanine lifts as dock lifts on steroids. As the leading dock lift manufacturer in the country since 1974, it is only natural that we have taken the lead in developing this product. If you would like further information please visit our website www.advancelifts.com or call us at 800-843-3625. We would be happy to share our knowledge with you.

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