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## Architects and Designers Should Understand Loads Exerted by Rolling Doors

It is important for architects and building designers to understand the loads that rolling doors exert on the wall above the opening and on the jamb. Dead loading would include the weight of the curtain, counterbalance, hood, operator, etc., that is supported by the wall above the opening. Live loading would result from wind loads that act on the door curtain.

On doors without windlocks, the only wind load force that the curtain exerts on the guides is normal to the opening. On doors with windlocks, there is an additional load that is parallel to the opening. This load is the catenary tension that results when the curtain deflects sufficiently to allow the windlocks to engage the windbar in the guide. This force acts to pull the guides toward the center of the opening. The door is exposed to a positive load by wind on the outside of the building. A negative load on the door comes from inside of the building.

Calculating the parallel force involves several variables, most prominent of which are the width of the opening and the specified wind load. It is also important to note that the door must withstand both positive and negative wind loads. Including these forces in the design of the jamb and its supporting structure can help prevent a jamb failure and allow the building to fully withstand its specified wind load requirements.

It should be noted that catenary forces computed by rolling door manufacturers assume that vertical jambs are rigid. Flexibility of vertical jambs could affect the magnitude of such catenary forces and the performance of the door.

The DASMA rolling door manufacturers can provide you with a guide data sheet for the rolling doors for your next project. Copies of the forms manufacturers can use are included with this Technical Data Sheet.

Please note that "rolling sheet doors" are excluded from this Technical Data Sheet, and are to be addressed separately.

The following four site conditions are to be avoided:

- *Building designed with roll-formed "C" jambs that cannot handle the normal and parallel forces exerted by the door guide assemblies.* The "C" jambs will rotate under wind load and the door curtain can be blown out of the guides. Openings on the steel buildings must have jambs designed for rolling door loads.
- *Wall above the opening not designed to handle the total hanging dead load.* Face of wall mounted doors may extend above the opening for 12 to 30 inches. The door guide wall angles must be mounted to the wall above the opening to support the door. When the door has a hood to cover the coiled curtain and counter-balance, some provision must be made to fasten the top of the hood and hood supports to the wall.
- *Concrete masonry unit wall without concrete and rebar reinforced jambs cannot handle the forces imposed by the door.* The design of a steel reinforced CMU jamb should have at least a 2500 psi concrete rating. A rebar free location for installation of expansion anchors is preferred.
- *Building designed with tilt-up concrete panel walls that include steel jambs not securely attached to the concrete panels.* Thus, the jambs cannot handle the forces imposed by the door. The steel jambs must be securely fastened to the wall along the full height of the opening.

**Note: Technical Data Sheets are information tools only and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific recommendations for their products and check the applicable local regulations.**

This Technical Data Sheet was prepared by the members of DASMA's Rolling Door Division Technical Committee. DASMA is a trade association comprising manufacturers of rolling doors, fire doors, grilles, counter shutters, sheet doors, and related products; upward-acting residential and commercial garage doors; operating devices for garage doors and gates, sensing devices, and electronic remote controls for garage doors and gate operators; as well as companies that manufacture or supply either raw materials or significant components used in the manufacture and installation of the Active Members' products.

ROLLING DOOR DIVISION  
**TECHNICAL DATA SHEET**  
**#251**

**GUIDE DATA SHEET**  
 (Face Mounted Door Without Windlocks) DATE: \_\_\_\_\_

Door Model: \_\_\_\_\_ Slat Type: \_\_\_\_\_ Gauge: \_\_\_\_\_ Serial No.: \_\_\_\_\_  
 Customer: \_\_\_\_\_ Job: \_\_\_\_\_  
 Opening Size: \_\_\_\_\_ Type of Guide: \_\_\_\_\_ Windload: \_\_\_\_\_ P.S.F.

The forces shown below are provided so you can determine that the building jamba are capable to withstand the loads imposed by the rolling door under specified load. These forces impose a load on the building; they are not reactions.

**"Z" Guide**

Windload	A	B	C	F1	F2	F3
Load Dir. 1						N/A
Load Dir. 2				N/A		

**"E" Guide**

Windload	A	B	C	F1	F2	F3
Load Dir. 1						N/A
Load Dir. 2				N/A		

Note: All forces are pounds per foot of height.

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**GUIDE DATA SHEET**

(Face Mounted Door With Windlocks)

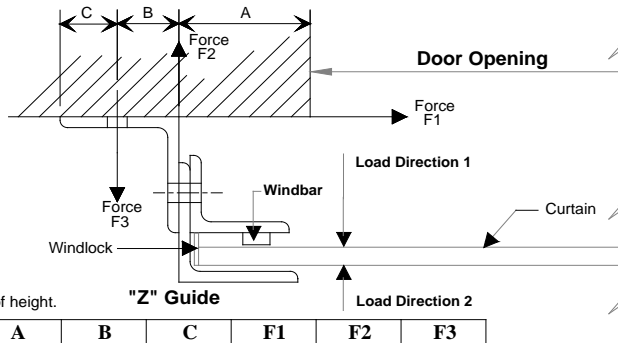
DATE: \_\_\_\_\_

Door Model: \_\_\_\_\_ Slat Type: \_\_\_\_\_ Gauge: \_\_\_\_\_ Serial No.: \_\_\_\_\_

Customer: \_\_\_\_\_ Job: \_\_\_\_\_

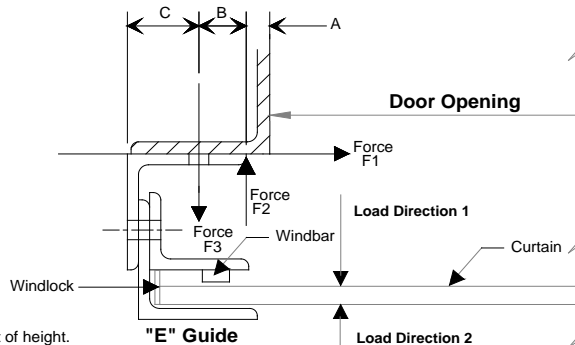
Opening Size: \_\_\_\_\_ Type of Guide: \_\_\_\_\_ Windload: \_\_\_\_\_ P.S.F.

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Note: All forces are pounds per foot of height.

Windload	A	B	C	F1	F2	F3
Load Dir. 1						
Load Dir. 2						



Note: All forces are pounds per foot of height.

Windload	A	B	C	F1	F2	F3
Load Dir. 1						
Load Dir. 2						

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**GUIDE DATA SHEET**

(Between-Jamb Mounted Doors Without Windlocks)

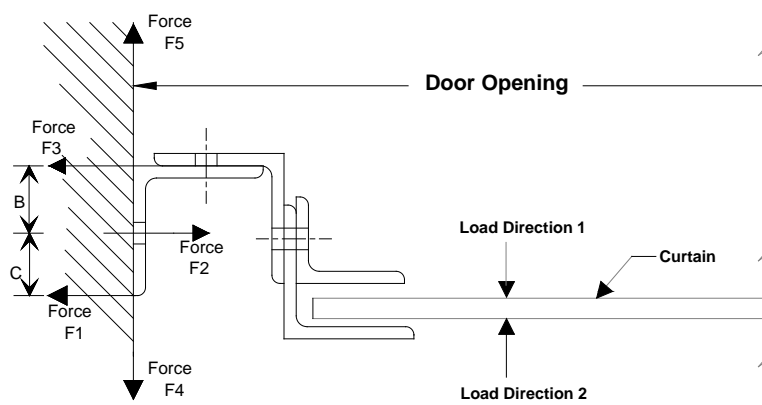
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Customer: \_\_\_\_\_ Job: \_\_\_\_\_

Opening Size: \_\_\_\_\_ Windload: \_\_\_\_\_ P.S.F.

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Note: All forces are pounds per foot of height.

Windload	B	C	F1	F2	F3	F4	F5
Load Dir. 1					N/A		N/A
Load Dir. 2			N/A			N/A	

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### GUIDE DATA SHEET

(Between-Jamb Mounted Doors With Windlocks)

DATE: \_\_\_\_\_

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Opening Size: \_\_\_\_\_ Windload: \_\_\_\_\_ P.S.F.

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Load Dir. 2			N/A			N/A	

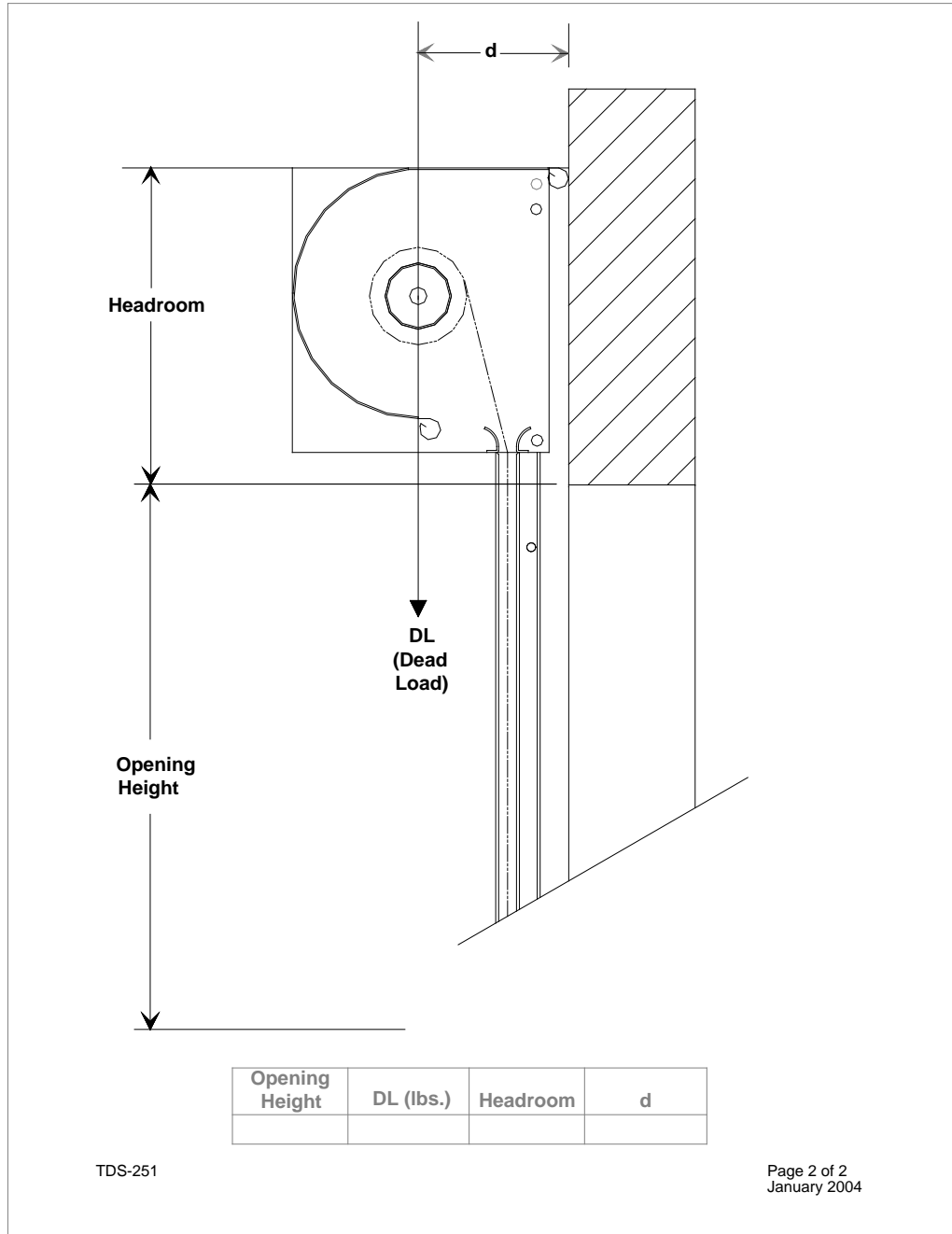
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