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CHAPTER 14

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* Indicates 11 x 17 sheet; all others are 8½ x 11.

This chapter is under development and will be revised at a later date.

Data in this chapter is provided for use until revisions are complete.

INSTRUCTIONS FOR THE USE OF PREFORMED ELASTOMERIC JOINT SEALER CHARTS

ASSUMPTIONS/DEFINITIONS:

1. Charts are valid only for simple steel/concrete spans.
2. Charts account for thermal movement, skew distortion of the elastomer and live load rotation.
3. Rotation depth: depth from top of slab to the point of rotation of the bearing.
4. Prestressed beam spans are assumed to have expansion bearings at both ends of beam.

TYPES OF CHARTS:

1. Skew angle vs. rotation depth:

   To use this chart, enter rotation depth at the bottom of the chart, read upward until the skew angle is intersected, and then read the sealer size to the right of this intersection point.

   EXAMPLE:

   Given: Simple span steel plate girder
   Span length = 180'
   Skew = 30°
   Rotation depth = 115"

   Required: Sealer size at fixed bearing at abutment

   Solution: Using chart (File No. 14.101-3), find intersection of rotation depth (115') and skew angle (30°). Sealer size to the right of this intersection point is 2"; therefore, use a 2" sealer.

2. Skew angle vs. span length:

   To use this chart, enter span length at the bottom of the chart, read upward until the skew angle is intersected, and then read the sealer size to the right of this point. Check rotation depth. A range of rotation depths is shown for each size of sealer. A linear interpolation of the curves may be made for rotation depths other than those shown. If the size of sealer is adequate for a given span and skew angle but not for rotation depth, select the next larger size of sealer.

   EXAMPLE:

   Given: Simple span steel plate girder
   Span length = 110'
   Skew = 30°
   Rotation depth = 60"

   Required: Sealer size at expansion bearing at abutment

   Solution: Using chart (File No. 14.101-4), find intersection of span length (110') and skew angle (30°). Point of intersection is through the range of 3½" sealers with a maximum rotation depth of approximately 48" which is less than the 60" required; therefore, select the next larger size of sealer which is 4".

SEALER SIZES AND JOINT OPENINGS FOR NEW CONSTRUCTION:

For joints in new concrete slabs, the following sealer sizes and joint openings at 60° F shall be used:

Sealer width b:	2"	2 1/2"	3"	3 1/2"	4"
Sealer depth h:	2 1/16"±	2 3/4"±	3"±	3 1/2"±	4 5/8"±
Opening width w:	1 1/4"	1 1/2"	1 7/8"	2 1/4"	2 1/2"

SEALER SIZES AND JOINT OPENINGS FOR EXISTING JOINTS OR SAWED JOINTS:

For joints in concrete slabs, the following sealer sizes and joint openings at 60° F shall be used:

Sealer width b:	1 1/4"	1 5/8"	1 3/4"	2"	2 1/2"	3"	3 1/2"	4"
Sealer depth h:	1 5/16"±	1 5/8"±	2"±	2 1/16"±	2 3/4"±	3"±	3 1/2"±	4 5/8"±
Opening width w:	3/4"	1"	1 1/8"	1 1/4"	1 1/2"	1 7/8"	2 1/4"	2 1/2"

TEMPERATURE ADJUSTMENT:

Joint openings (new construction, existing joints, or sawed joints) shall be adjusted by "t" for each 10° F variation from 60° F:

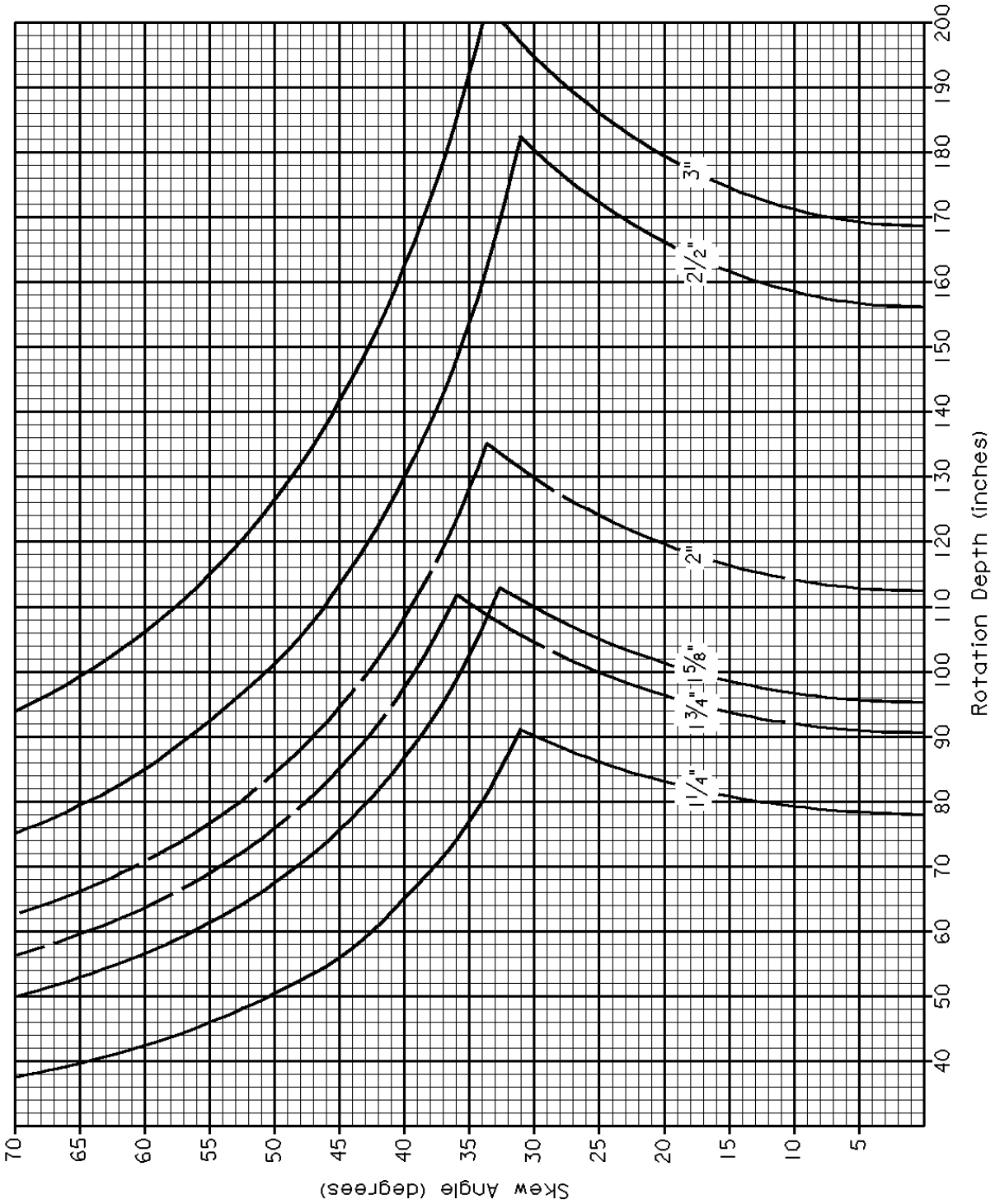
TOTAL EXPANSION LENGTH AT JOINT (feet)	TEMPERATURE VARIATION PER 10° F (t)
40 - 60	3/64"
60 - 100	1/16"
100 - 125	3/32"
125 - 150	7/64"
150 - 200	5/32"

Joints for fixed bearings only: t = 0".

WIDENING OR DECK REPAIR:

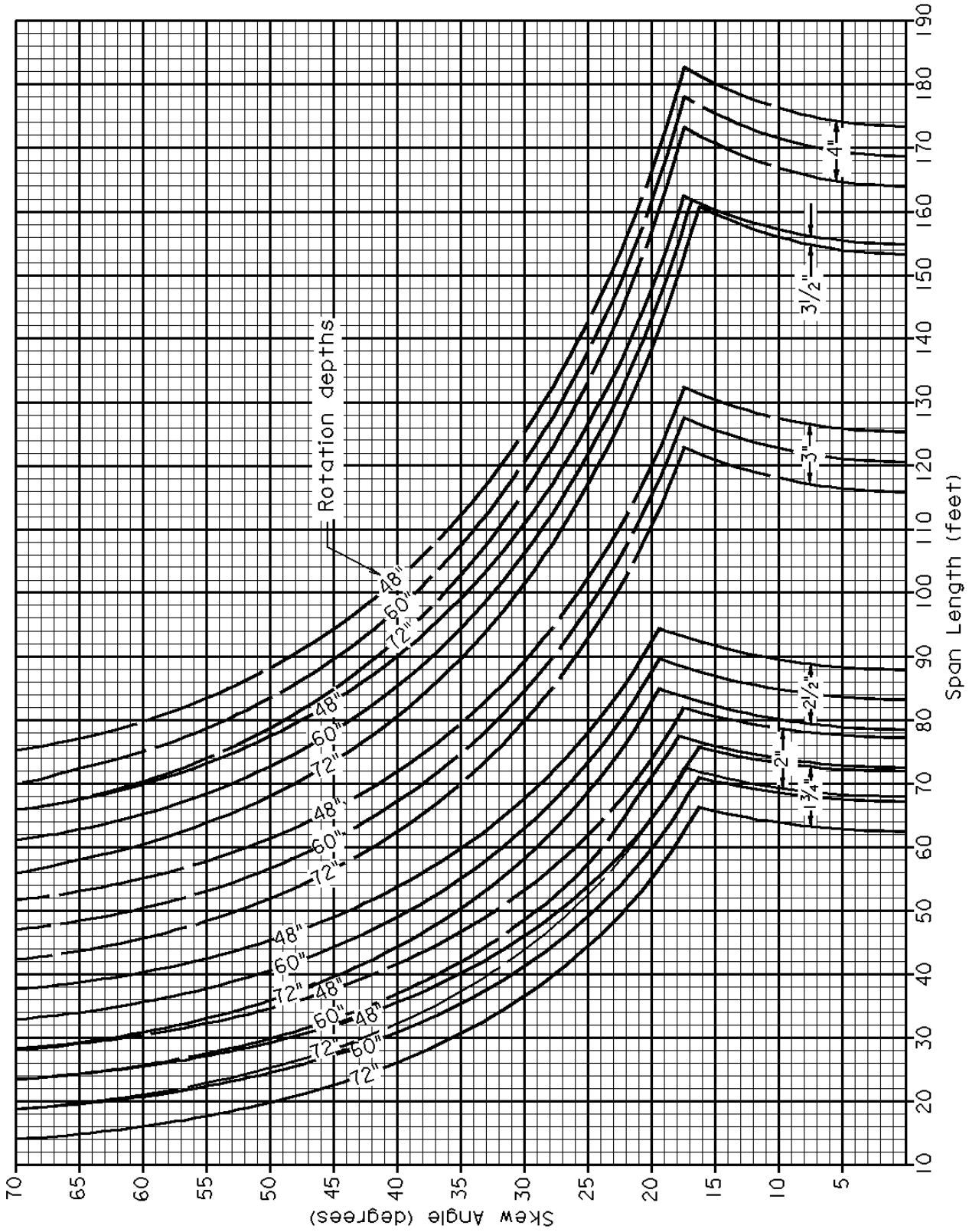
When a structure is to be widened or its deck repaired, the condition of the existing joints will be determined by field inspection. If it is determined that the existing joint(s) is(are) deteriorating and need to be repaired, details will be shown in the plans as to how the joint repairs are to be made.

In special cases where a blockout or seat is provided for a sealer, the depth shall be 1.4 times the sealer width (1.4 × b).



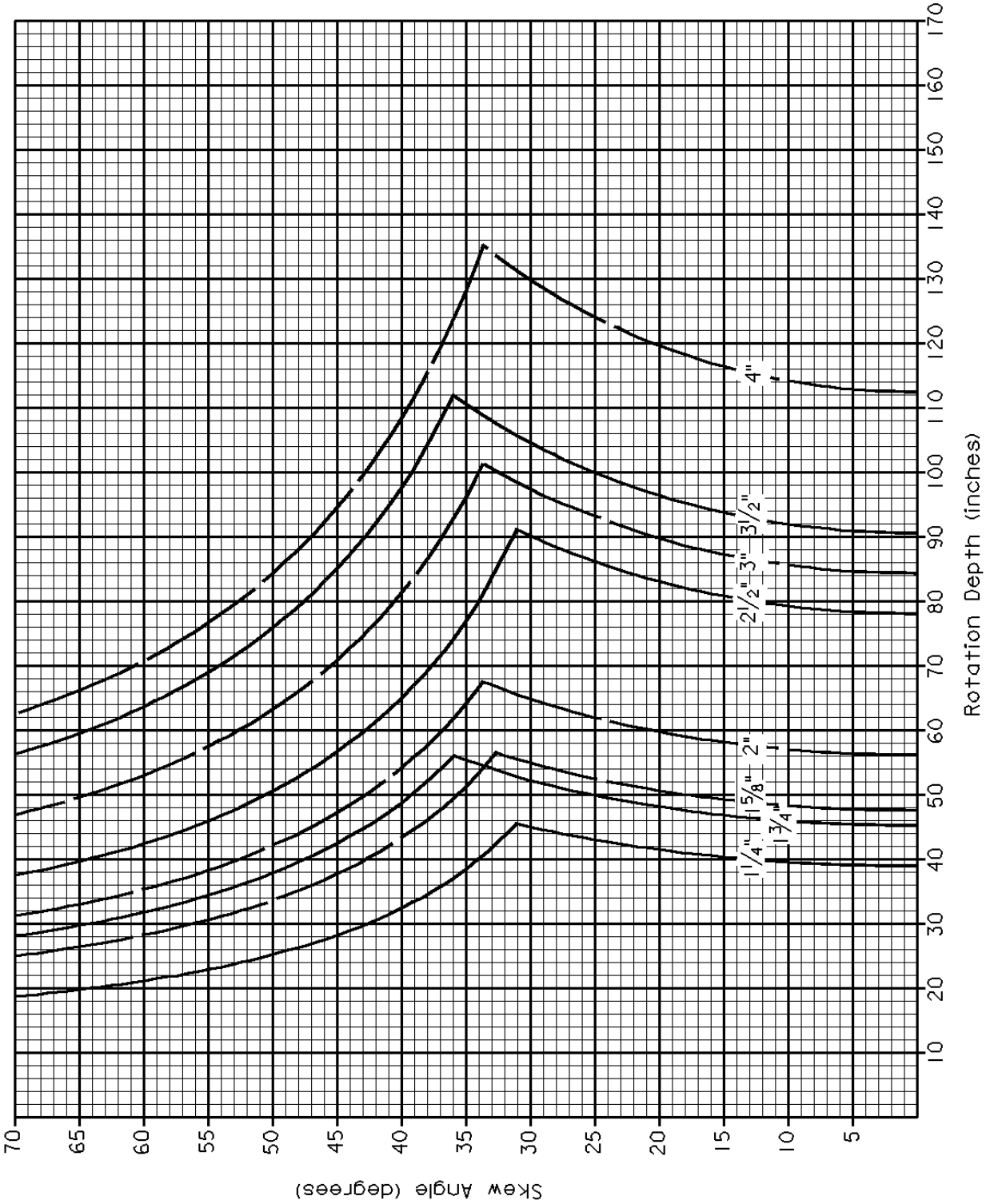
(FIXED BEARING AT ABUTMENT)

JOINTS **PREFORMED ELASTOMERIC JOINT SEALER RANGES** **SIMPLE STEEL BEAM / GIRDER SPANS**	VOL. V - PART 2 DATE: 01Apr2005 SHEET 3 of 9 FILE NO. 14.100-3



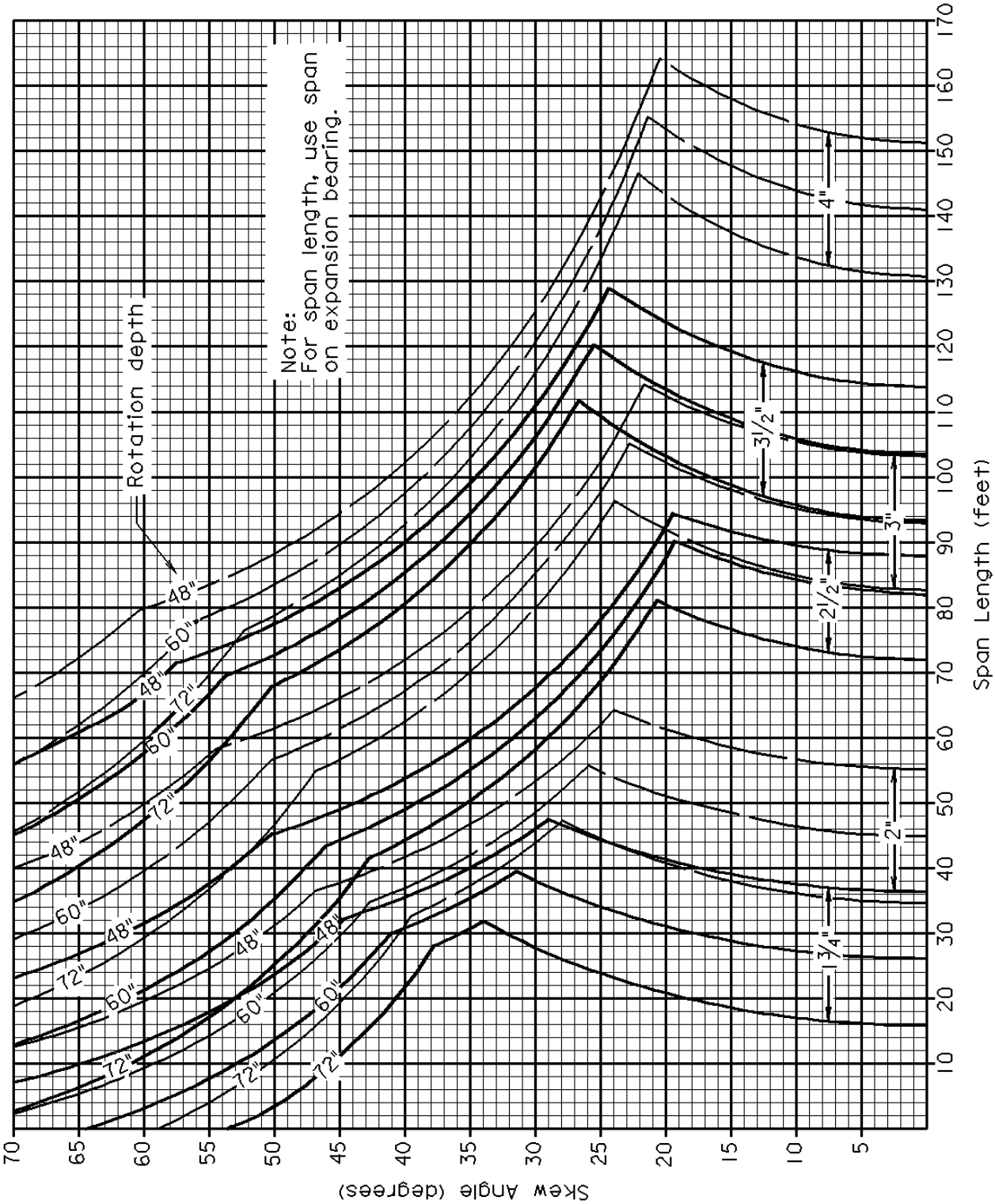
(EXPANSION BEARING AT ABUTMENT)

JOINTS **PREFORMED ELASTOMERIC JOINT SEALER RANGES** **SIMPLE STEEL BEAM / GIRDER SPANS**	VOL. V - PART 2 DATE: 01Apr2005 SHEET 4 of 9 FILE NO. 14.100-4



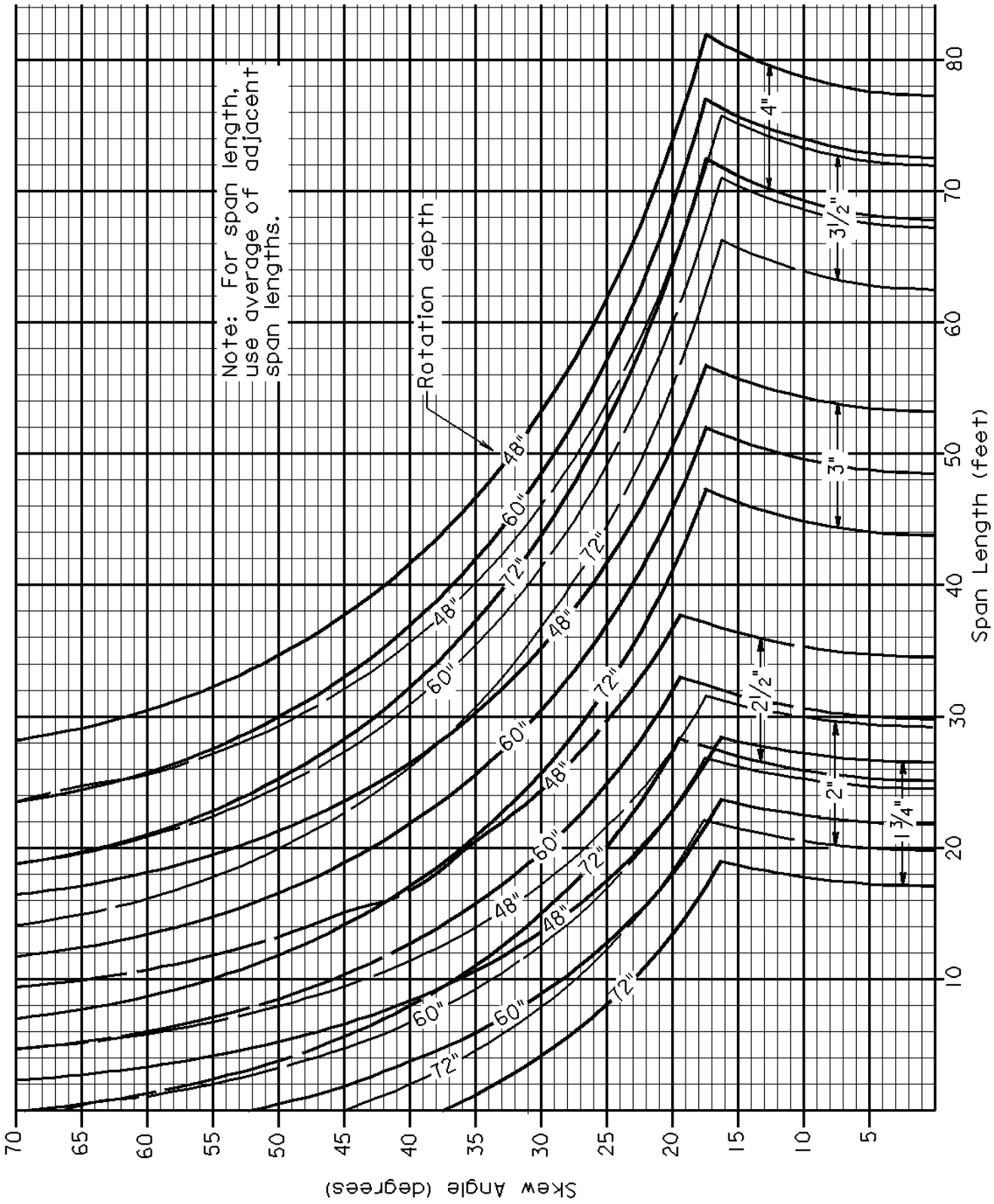
(TWO FIXED BEARINGS AT PIER)

JOINTS **PREFORMED ELASTOMERIC JOINT SEALER RANGES** **SIMPLE STEEL BEAM / GIRDER SPANS**	VOL. V - PART 2 DATE: 01Apr2005 SHEET 5 of 9 FILE NO. 14.100-5



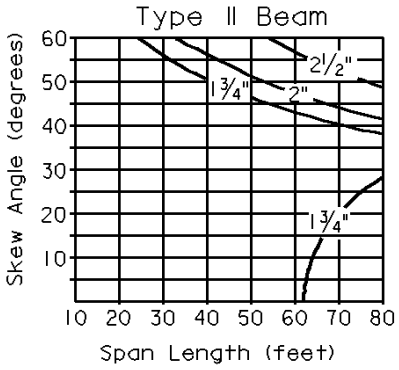
(FIXED AND EXPANSION BEARING AT PIER)

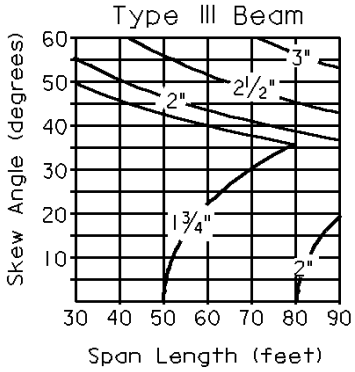
JOINTS **PREFORMED ELASTOMERIC JOINT SEALER RANGES** **SIMPLE STEEL BEAM / GIRDER SPANS**	VOL. V - PART 2 DATE: 01Apr2005 SHEET 6 of 9 FILE NO. 14.100-6

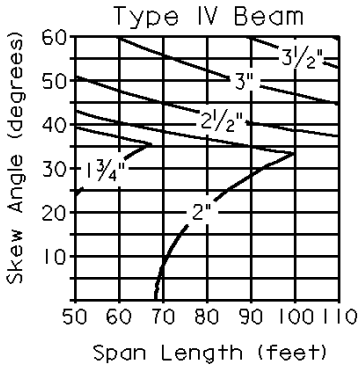


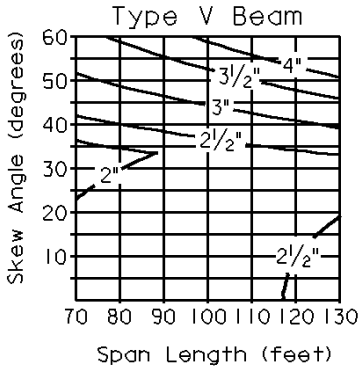
(TWO EXPANSION BEARINGS AT PIER)

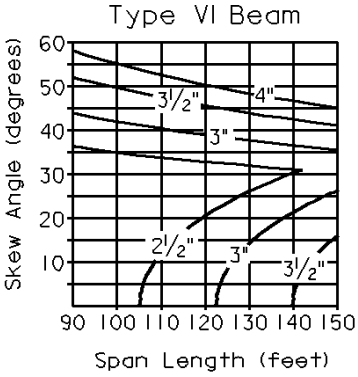
JOINTS **PREFORMED ELASTOMERIC JOINT SEALER RANGES** **SIMPLE STEEL BEAM / GIRDER SPANS**	VOL. V - PART 2 DATE: 01Apr2005 SHEET 7 of 9 FILE NO. 14.100-7









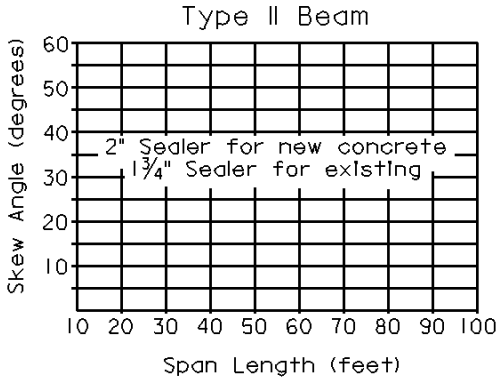


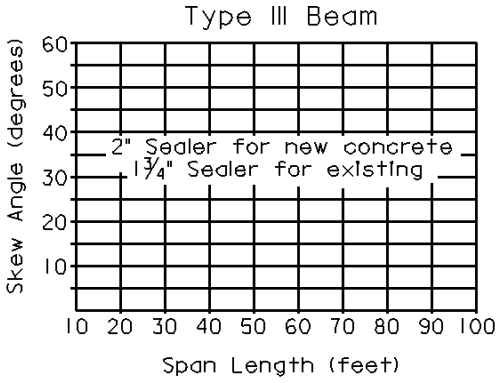
Notes to designer:

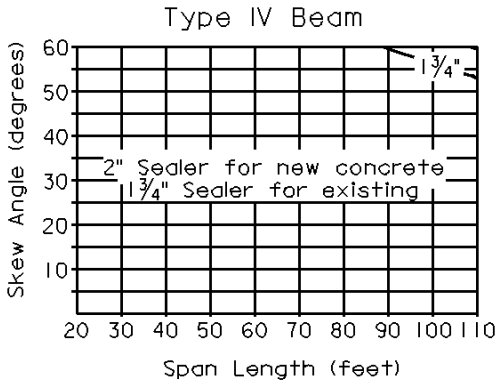
1) For span length, use average of adjacent span lengths.
2) Both ends of beam assumed to have expansion bearings.

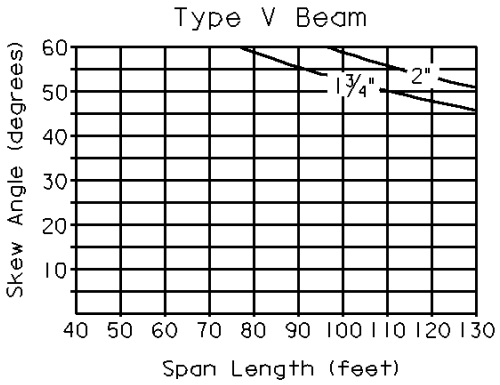
(TWO EXPANSION BEARINGS AT PIER)

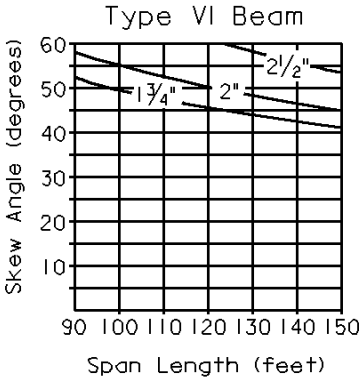
JOINTS **PREFORMED ELASTOMERIC JOINT SEALER RANGES** **SIMPLE PRESTRESSED CONCRETE BEAM SPANS**	VOL. V - PART 2 DATE: 01Apr2005 SHEET 8 of 9 FILE NO. 14.100-8











Note to designer:

1) Both ends of beam assumed to have expansion bearings.

(EXPANSION BEARING AT ABUTMENT)

JOINTS **PREFORMED ELASTOMERIC JOINT SEALER RANGES** **SIMPLE PRESTRESSED CONCRETE BEAM SPANS**	VOL. V - PART 2 DATE: 01Apr2005 SHEET 9 of 9 FILE NO. 14.100-9