



# Kaiser Bolted Connection

*A New Paradigm for Moment Frame Construction*

- ◆ Pre-Engineered & Tested
- ◆ Cost Competitive With Welding
- ◆ Easy Installation

## Steel Moment Connection Cost Comparisons

Location:	Los Angeles, CA	
Building Size:	280,000	ft <sup>2</sup>
Floor Plate:	18,667	ft <sup>2</sup>
Stories:	15	
# Connections:	342	
Typical Steel Beam	W27x84	
Typical Steel Column	W14x233	
Typical Beam Span	24	ft.
Typical Flr-to-Flr	15	ft.
Material Costs <sup>1,2</sup> :	\$2,338	per ton
Erection Costs <sup>1,3</sup> :	\$908	per ton
Field Welded Connections <sup>1,13</sup> :	\$300	per ton
Weld Special Inspection <sup>14</sup> :	\$80	per ton

Item	Bolted Bracket™	Reduced Beam Section, RBS	Side Plate Sure Frame™	SSDA Slotted Web™
<b>Material Costs<sup>1,2</sup>:</b>				
Beam <sup>4</sup>	\$2,357	\$2,592	\$2,121	\$2,357
Column <sup>5</sup>	\$4,086	\$4,086	\$3,677	\$4,086
Side Plates <sup>6</sup>	\$0	\$0	\$1,298	\$0
Kaiser Brackets <sup>7</sup>	\$1,256	\$0	\$0	\$0
RBS Cutout <sup>8</sup>	\$0	\$400	\$0	\$0
Beam Slots <sup>9</sup>	\$0	\$0	\$0	\$280
<b>Total Material Costs</b>	<b>\$7,699</b>	<b>\$7,078</b>	<b>\$7,096</b>	<b>\$6,722</b>
<b>Installation Costs<sup>1,3</sup>:</b>				
Beam <sup>4</sup>	\$915	\$1,007	\$824	\$915
Column <sup>5</sup>	\$1,587	\$1,587	\$1,428	\$1,587
Field Welds <sup>10,13</sup>	\$0	\$857	\$744	\$827
Weld Special Inspection <sup>10,14</sup>	\$0	\$229	\$198	\$220
<b>Total Installation Costs</b>	<b>\$2,502</b>	<b>\$3,679</b>	<b>\$3,194</b>	<b>\$3,549</b>
Cost/Connection:	\$10,201	\$10,757	\$10,290	\$10,271
Proprietary Licensing Fee <sup>11</sup>	\$0	\$0	\$168,000	\$40,000
Bracket Savings/Connection <sup>12</sup>		<b>\$556</b>	<b>\$581</b>	<b>\$277</b>
<b>Total Savings</b>		<b>\$189,975</b>	<b>\$198,418</b>	<b>\$68,145</b>

Washington: (206) 250-7035  
 California: (510) 305-9080  
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- <sup>1</sup> Source: RS Means, Building Construction Cost Data, 63rd Annual Ed., Reed Construction Data, 2005
- <sup>2</sup> Materials include: steel base price, extras and delivery to ship, drafting, shop fabrication & warehouse retarding, shop coat paint, trucking to job site
- <sup>3</sup> Installation includes: Unload and shake out, erect and plumb, field bolt, crane & minor erection equipment
- <sup>4</sup> RBS beam cost is 10% higher to account for stiffness loss at the weakened sections; Side Plate beam cost is 10% lower to account for side plate effect of increased beam stiffness
- <sup>5</sup> Side Plate column cost is 10% lower to account for deeper column sections
- <sup>6</sup> Side Plates weight: 1.2 psf per SidePlate.com web site
- <sup>7</sup> Kaiser Bracket costs includes (4) N2.0 brackets, shop welding
- <sup>8</sup> RBS includes (4) flange radius cuts per beam, and weld access holes; Source: Camron
- <sup>9</sup> SSDA slotted web includes (4) web cuts, and weld access holes
- <sup>10</sup> Full penetration welding and ultra-sonic testing included
- <sup>11</sup> Source: SSDA web site ([www.ssda.net](http://www.ssda.net)); Side Plate System (\$.60/s.f. licencing fee)
- <sup>12</sup> Kaiser Bracket reduces erection time by up to two times than that of other connection types, allowing a compressed construction schedule and reduced interest paid on construction loans. Unfortunately, interest savings cannot be reflected on this table
- <sup>13</sup> Source: The Erection Company (10 hours per beam at \$80/manhour plus \$16.5/hour weld machine, wire, etc.)
- <sup>14</sup> Source: Construction Testing & Engineering, CTE (3 hrs per beam at \$80/manhour plus \$15/hour testing machine, etc.)

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