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| محتویات این بخش: | گزارش اتصالات تير به ستون |

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| |  | | --- | | etesal3 | | |  | | --- | | etesal2 | | |  | | --- | | etesal1 | | mafsali | |

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| نام اتصال تیر به ستون: | etesal1 |

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| |  |  | | --- | --- | | گزارش محاسبات : بررسي ورق هاي بالاسري و پائين سري در اتصال تير به ستون گيردار - صلب | | | مشخصات کلی گزارش | $level3$ | | |  |  |  | | --- | --- | --- | | تنش تسلیم فولاد |  | 2400.0 | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | حداقل فاصله آزاد مورد نیاز بعد از جوشکاری |  | 0.5 | | |  |  | | --- | --- | | واکنش تکیه گاهی |  | | = 6.79 100 % = 6.79 | | | بعد جوش |  | | ورق بالاسری | = 8 mm | | ورق زیرسری | = 8 mm | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level3$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE270 | | عرض بال |  | 13.5 | | ضخامت بال |  | 10 | | ارتفاع |  | 27.0 | | ضخامت جان |  | 7 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | ورق بالا سری | | | | عرض کوچکتر |  | 5.0 | | عرض بزرگتر |  | 13.0 | | طول کلی |  | 15.0 | | طول جوش نشده |  | 1.5 | | ضخامت |  | 12 | | | $PlateType$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG/400x400x30 | | عرض ستون |  | 40.0 | | ضخامت ستون |  | 30 | | |  |  |  | | --- | --- | --- | | ورق زیر سری | | | | عرض |  | 17.0 | | طول کلی |  | 20.0 | | طول جوش نشده |  | 1.5 | | ضخامت |  | 10 | | | |

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|  | |  |  | | --- | --- | | کنترل هندسی اجزاء اتصال | $level2$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی ورق بالا سری | | $level4$ | | | | $S3_C1$ | 5.0 10.9 | |  | $Frame$ | | $S3_C2$ | 13.0 40.0 | |  | $Frame$ | | $S3_C3$ | 1.5 1.5 | |  | $Frame$ | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | اتصال از پیش تایید شده گیر دار جوشی با ورق های زیر سری روسری (WFP) | | | Description: $level4$ | | | | ناحیه محافظت شده | |  | | 33.5 |  | | محل مفصل پلاستیک | |  | | 20.0 |  | | عمق تیر | *$dbWFP_PNG$* | 270 | |  |  | | ضخامت بال تیر | *$tbfRBS_PNG$* | 10 | |  |  | |

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| (جدول 10-2-9-3) مبحث 10-1392 | |  |  |  |  | | --- | --- | --- | --- | | محاسبه و کنترل ورق بالاسری | | $level2$ | | | کنترل کفایت جوش نفوذی در ورق بالاسری | | $level3$ | | | $S8_C1$ | جوش شیاری تحت کشش عمود بر مقطع موثر قرار دارد. مطابق جدول 10-2-9-3 مبحث 10-1392، جوش شیاری با نفوذ کامل باید براساس فلز پایه کنترل شود؛ که در بخش دیگری آمده است. | |  | |

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| |  | | --- | | (بند 10-2-3-4(الف)) مبحث 10-1392 | | (بند 10-3-1-5 (12) مبحث 10-1392) | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت کششی در ورق بالاسری | | $level3$ | | | | نیروی کششی نهایی ایجاد شده در ورق ناشی از لنگر خمشی در تیر | | |  |  | |  | 24.16 | |  |  | | ضریب کاهش مقاومت | | | 1.00 |  | | مقاومت کششی طراحی | 35.14 | |  |  | | نسبت مقاومت کششی در ورق بالا سری | 0.69 | |  |  | | Description: Description: $S4_C1$ | 0.69 | |  | $Frame$ | |

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| (بند10-2-9-4-3) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل برش قالبی در فلز پایه (فلز مادر) | | | $level3$ | | | | | نیروی نهایی کششي موجود در ورق |  | | | | 24.16 |  | | ضریب کاهش مقاومت |  | | | | 1.00 |  | | ضخامت ورق |  | | | | 10 |  | | سطح مقطع تحت برش |  | | | | 28.50 |  | | سطح مقطع خالص تحت کشش |  | | | 12.44 | |  | | ضریب توزیع تنش کششی |  | | | 1.00 | |  | | مقاومت طراحی |  | | | | |  | | 87.09 | |  | | | |  | |  | 0.28 | | | |  |  | | $RatioResult67$ | 0.28 | | | |  | $Frame$ | |

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| |  | | --- | | (بند 10-2-9-2-4 (ب)) مبحث 10-1392 | | (بند10-3-13-5 (12) مبحث 10-1392) | | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی در جوش گوشه ورق بالاسری | | | $level3$ | | | | | | بعد جوش ورق بالاسری |  | | | | | 8 |  | | ضریب کاهش مقاومت | | | | | | 0.90 |  | | ارزش جوش | 962.2 | | |  | | |  | | طول جوش نشده ورق | |  | | | 1.5 | |  | | طول کلی جوش | | 40.1 | | |  | |  | | نسبت مقاومت برشی در جوش گوشه | | 0.63 | | |  | |  | | Description: Description: $S5_C1$ | | 0.63 | | |  | | $Frame$ | |
| (بند 10-2-9-2-2 (ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل هندسی کفایت بعد و طول جوش گوشه ورق بالاسری | | $level3$ | | | | |  |  | | 12 | |  | |  |  | | 10 | |  | |  |  | | 5 | |  | |  |  | | 10 | |  | | Description: Description: $S6_C1$ | 5 8 10 | | |  | $Frame$ | | Description: Description: $S6_C2$ | 401 32 | | |  | $Frame$ | |

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| (جدول 10-2-9-3) مبحث 10-1392 | |  |  |  |  | | --- | --- | --- | --- | | محاسبه و کنترل ورق زیر سری | | $level2$ | | | کنترل کفایت جوش نفوذی در ورق زیرسری | | $level3$ | | | $S8_C2$ | جوش شیاری تحت کشش عمود بر مقطع موثر قرار دارد. مطابق جدول 10-2-9-3 مبحث 10-1392، جوش شیاری با نفوذ کامل باید براساس فلز پایه کنترل شود؛ که در بخش دیگری آمده است. | |  | |

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| |  | | --- | | (بند 10-2-3-4(الف)) مبحث 10-1392 | | (بند 10-3-13-5 (12)) مبحث 10-1392 | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل نسبت مقاومت کششی در ورق زیر سری | | $level3$ | | | | نیروی کششی نهایی ایجاد شده در ورق ناشی از لنگر خمشی در تیر | 24.16 | |  |  | | ضریب کاهش مقاومت | | | 1.00 |  | | مقاومت کششی طراحی | 40.80 | |  |  | | نسبت مقاومت کششی در ورق زیر سری | 0.59 | |  |  | | Description: Description: $S9_C1$ | 0.59 | |  | $Frame$ | |

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| |  | | --- | | (بند 10-2-9-2-4 (ب)) مبحث 10-1392 | | (بند 10-3-13-5 (12)) مبحث 10-1392 | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی در جوش گوشه ورق زیر سری | | | | | $level3$ | | | بعد جوش ورق زیرسری | |  | | | 8 |  | | ضریب کاهش مقاومت | | | | | S10\_PhiWeld Not Found |  | | ارزش جوش | S10\_Rw Not Found | | |  | |  | | طول جوش نشده ورق | | |  | | 1.5 |  | | طول کلی جوش | | | 37.0 | |  |  | | نسبت مقاومت برشی در جوش گوشه | | | 0.68 | |  |  | | $S10_C1$ | | | 0.68 | |  | *$Frame$* | |
| (بند 10-2-9-2-2 (ب)) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل هندسی کفایت بعد و طول جوش گوشه ورق زیرسری | | $level3$ | | | | | |  |  | | 10 | | |  | |  |  | | 10 | | |  | |  |  | | 5 | | |  | |  |  | | 8 | | |  | | Description: Description: $S12_C1$ | 5 8 8 | | | |  | $Frame$ | | Description: Description: $S12_C2$ | 370 32 | | |  | | $Frame$ | |

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| |  |  |  | | --- | --- | --- | | گزارش محاسبات : بررسي سخت کننده نشيمن در اتصال تير به ستون گيردار - صلب | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 3.63 100 % 50 % = 1.82 | | | بعد جوش سخت کننده­ها به ستون | | = 5 | | بعد جوش ورق نشیمن به تیر | | = 8 | | حداقل فاصله آزاد مورد نیاز بعد از جوشکاری | | 5 | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE270 | | عرض بال |  | 13.5 | | ضخامت بال |  | 10 | | ارتفاع |  | 27.0 | | ضخامت جان |  | 7 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات سخت کننده | | | | ارتفاع سخت کننده |  | 9.0 | | عرض سخت کننده |  | 9.0 | | ضخامت سخت کننده |  | 8 | | تعداد سخت کننده ها |  | 2 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG/400x400x30 | | عرض ستون |  | 40.0 | | ضخامت ستون |  | 30 | | |  |  |  | | --- | --- | --- | | مشخصات ورق نشیمن | | | | پهنای ورق نشیمن |  | 17.0 | | ضخامت ورق نشیمن |  | 10 | | طول ورق نشیمن |  | 1.5 | | | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | Description: Description: $S3_C1$ | 10 8 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C2$ | 16 7 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C3$ | 40.0 17.0 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C4$ | 10 10 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C5$ | 17.0 16.1 | |  | Description: Description: $Frame$ | |
| |  | | --- | |  | | (بند 10-2-9-10-2) مبحث 10-1392 | | (بند 10-2-9-10-3) مبحث 10-1392 |   م.ازهری و س.ر. میرقادری (1389)، میرقادری طراحی سازه های فولادی-جلد سوم -اتصالات، انتشارات ارکان دانش،ص341 | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل عرض نشیمن برای جلوگیری از تسلیم و لهیدگی جان تحت اثر بارهای متمرکز | | | $level3$ | | | | | | | | تعیین حداقل عرض ورق نشیمن بر مبنای تسلیم موضعی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | | | 1.00 | | | |  | | حداقل عرض نشیمن بر اساس تسلیم موضعی جان | | 2.5 | | |  | | | |  | | کنترل حداقل عرض ورق نشیمن بر مبنای لهیدگی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | 0.75 | | | | | |  | |  | | | | | |  | Description: Description: $Frame$ |  | $S4_C2$ | |  | | | | | |  | Description: Description: $Frame$ | $S4_C3$ | |  |  | | | -14.5 | | | | |  | | حداقل طول نشیمن تیر | 2.5 | | |  | | | | |  | | $S4_C1$ | 9.0 4.0 | | |  | | | | | Description: Description: $Frame$ | |
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| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل کفایت ابعاد ورق(های) سخت کننده (بر اساس روش پلاستیک) | | | $level2$ | | | | | کنترل کمانش موضعی سخت کننده (ها) | | $level4$ | | | | | | Description: Description: $S5_C3$ | 1.00 11.25 21.43 | | | Description: Description: $Frame$ |  | Description: Description: $S5_C2$ | | Description: Description: $S5_C5$ | 2.0 | | | Description: Description: $Frame$ | Description: Description: $S5_C4$ | | Description: Description: $S5_C50$ |  | | | Description: Description: $Frame$ | Description: Description: $S5_C40$ | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت سخت کننده(ها) | | | | |  | | | کنترل مقاومت اتکایی | | | | |  | | | سطح مقطع | | 12.00 | | |  |  | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | مقاومت اتکایی طرح | | 38.88 | | |  |  | | نسبت تنش اتکایی | | 0.05 | | |  |  | | Description: Description: $S6_C1$ | | 0.05 | | |  | *Description: Description: $Frame$* | | کنترل مقاومت تسلیم | | | | | $level4$ | | | فاصله برون محوری بار از بر ستون | | 7.7 | | |  |  | | فاصله برونمحوری بار تا وسط عرض سختکننده ­­ | | | 3.2 | |  |  | |  | | 0.50 | | |  |  | | ضریب کاهش مقاومت | | 0.90 | | | |  | | مقاومت طراحی سختکننده(ها)­­ | 7.97 | | |  | |  | | نسبت مقاومت | | 0.23 | | |  |  | | Description: Description: $S6_C2$ | | 0.23 | | |  | *Description: Description: $Frame$* | |
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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل نسبت تنش در جوش سخت کننده (ها) به بال ستون | | | | $level3$ | | | | محاسبه اندر کنش تنش های جوش در بر ستون | | | | $level4$ | | | | لنگر خمشی نهایی در بر ستون | | 0.14 | | |  |  | | تعداد سخت­کننده (ها) | |  | | | 2 |  | | طول جوش شده ورق نشیمن به بال ستون | | 15.4 | | |  |  | | مدول الاستیک مقطع | 97.47 | |  | | |  | | تنش کششی نهایی ناشی از خمش | | 144.2 | | |  |  | | تنش برشی نهایی ناشی از واکنش تکیه گاهی | | 35.3 | | |  |  | | اندر کنش تنش های نهایی | | 148.4 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش گوشه | | $level4$ | | | | | | ضریب کاهش مقاومت |  | | | | 0.75 |  | | ارزش جوش | 501.2 | |  | | |  | | نسبت تنش جوش | 0.30 | | |  | |  | | Description: Description: $S7_C1$ | 0.30 | | |  | | *Description: Description: $Frame$* | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش گوشه | | $level4$ | | | | | ضخامت سخت کننده |  | | 8 | |  | | ضخامت ستون |  | | 30 | |  | | حداقل بعد جوش |  | | 5 | |  | | حداکثر بعد جوش |  | | 8 | |  | | بعد جوش |  | | 5 | |  | | Description: Description: $S8_C1$ | 5 5 8 | | |  | Description: Description: $Frame$ | |

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| |  |  |  | | --- | --- | --- | |  | | | | گزارش محاسبات : بررسي نبشي جان در اتصال تير به ستون گيردار - صلب | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 3.63 100 % 50 % = 1.82 | | | بعد جوش اتصال نبشی به تیر | | = 3 mm | | بعد جوش اتصال نبشی به ستون | | = 5 mm | | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE270 | | عرض بال |  | 13.5 | | ضخامت بال |  | 10 | | ارتفاع |  | 27.0 | | ضخامت جان |  | 7 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات نبشی | | | | نام نبشی |  | 60x60x6 | | طول نبشی |  | 10.0 | | بعد اول بال نبشی |  | 6.0 | | بعد دوم بال نبشی |  | 6.0 | | ضخامت نبشی |  | 6 | | تعداد |  | 2 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG/400x400x30 | | عرض ستون |  | 40.0 | | ضخامت ستون |  | 30 | |  | | | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | کنترل بیرون زدگی ارتفاع نبشی از ارتفاع موثر تیر |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: $S3_C1$ | 10.0 21.0 |  | Description: Description: $Frame$ |  |  |  |  |  | | --- | --- | --- | --- | | کنترل بیرون زدگی عرض نبشی از ستون |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: Description: Description: Description: $S3_C2$ | 6.0 19.2 |  | Description: Description: Description: Description: Description: $Frame$ | |
| (بند 10-2-9-4-2 (الف)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی نبشی | | $level3$ | | | | | نیروی برشی نهایی وارد بر نبشی | 0.91 | | |  |  | | ضریب کاهش مقاومت |  | | | 1.00 |  | | مقاومت برشی طراحی | 8.64 | |  | |  | |  | 0.21 | | |  |  | | Description: Description: $S4_C3$ | 0.21 | | |  | Description: Description: $Frame$ | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش اتصال نبشی به تیر | | | $level3$ | | | | محاسبه اندرکنش تنش های جوش | | | $level4$ | | | | ارتفاع جوش |  | | | 10.0 |  | | عرض جوش | 4.5 | | |  |  | | سطح مقطع جوش در واحد طول | 38.0 | | |  |  | | فاصله مرکز سطح جوش از خط قائم آن | 1.1 | | |  |  | | برون محوری پیچی | 4.9 | | |  |  | | ممان اینرسی قطبی | 347.50 | | |  |  | | لنگر پیچشی نهایی | 0.04 | | |  |  | | تنش برشی نهایی جوش در جهت قائم | 47.8 | | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت قائم | | 44.3 | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت افقی | | 64.5 | |  |  | | اندر کنش تنش های نهایی | 112.4 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش | | | $level4$ | | | | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | ارزش جوش | 300.7 | | |  | |  | | نسبت تنش جوش | | 0.37 | | |  |  | | Description: Description: $S5_C1$ | | 0.37 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب))مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت تیر در محل اتصال نبشی |  | | 7 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 3 | |  | | Description: Description: $S5_C2$ | 3 3 6 | | |  | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش B-جوش اتصال نبشی به ستون | | $level3$ | | | | محاسبه اندرکنش تنش های جوش B(بر اساس رابطه بلاجت) | | $level4$ | | | | سطح مقطع جوش در واحد طول | 20.0 | |  |  | | تنش برشی نهایی جوش در جهت قائم | 90.8 | |  |  | | لنگر پیچشی نهایی وارد بر جوش | 0.06 | |  |  | | بیشینه تنش کششی نهایی ناشی از پیچش در جهت افقی | 206.9 | |  |  | | اندر کنش تنش های نهایی | 225.9 | |  |  | |
| (بند 10-2-9-2- (ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوشB | | $level4$ | | | | | ضریب کاهش مقاومت |  | | | 0.75 |  | | ارزش جوش | 501.2 | |  | |  | | نسبت تنش جوش | 0.45 | | |  |  | | Description: Description: $S6_C1$ | 0.45 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش B | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت ستون در محل اتصال نبشی |  | | 30 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 5 | |  | | Description: Description: $S6_C2$ | 3 5 6 | | |  | $Frame$ | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |

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| نام اتصال تیر به ستون: | etesal2 |

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| |  |  | | --- | --- | | گزارش محاسبات : بررسي ورق هاي بالاسري و پائين سري در اتصال تير به ستون گيردار - صلب | | | مشخصات کلی گزارش | $level3$ | | |  |  |  | | --- | --- | --- | | تنش تسلیم فولاد |  | 2400.0 | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | حداقل فاصله آزاد مورد نیاز بعد از جوشکاری |  | 0.5 | | |  |  | | --- | --- | | واکنش تکیه گاهی |  | | = 11.34 100 % = 11.34 | | | بعد جوش |  | | ورق بالاسری | = ندارد | | ورق زیرسری | = 8 ندارد | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level3$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | PG-30\*20\*2 | | عرض بال |  | 20.0 | | ضخامت بال |  | 20 | | ارتفاع |  | 30.0 | | ضخامت جان |  | 20 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.0 | | |  |  |  | | --- | --- | --- | | ورق بالا سری | | | | عرض کوچکتر |  | 20.0 | | عرض بزرگتر |  | 20.0 | | طول کلی |  | 52.0 | | طول جوش نشده |  | 0.1 | | ضخامت |  | 25 | | | $PlateType$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG/340x340x40 | | عرض ستون |  | 34.0 | | ضخامت ستون |  | 40 | | |  |  |  | | --- | --- | --- | | ورق زیر سری | | | | عرض |  | 32.0 | | طول کلی |  | 52.0 | | طول جوش نشده |  | 1.5 | | ضخامت |  | 25 | | | |

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|  | |  |  | | --- | --- | | کنترل هندسی اجزاء اتصال | $level2$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی ورق بالا سری | | $level4$ | | | | $S3_C2$ | 20.0 34.0 | |  | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی ورق زیر سری | | $level4$ | | | | $S3_C2$ | 32.0 34.0 | |  | $Frame$ | |

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| (جدول 10-2-9-3) مبحث 10-1392 | |  |  |  |  | | --- | --- | --- | --- | | محاسبه و کنترل ورق بالاسری | | $level2$ | | | کنترل کفایت جوش نفوذی در ورق بالاسری | | $level3$ | | | $S8_C1$ | جوش شیاری تحت کشش عمود بر مقطع موثر قرار دارد. مطابق جدول 10-2-9-3 مبحث 10-1392، جوش شیاری با نفوذ کامل باید براساس فلز پایه کنترل شود؛ که در بخش دیگری آمده است. | |  | |

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| |  |  |  |  | | --- | --- | --- | --- | | گزارش محاسبات: بررسي روند طراحي پيچ هاي ورق بالاسري | | | | | کنترل پیچ ها | | $level3$ | | | مشخصات کلی پیچ ها | | $level4$ | | | |  |  |  | | --- | --- | --- | | مشخصات پیچ ها |  | BOLT\_A490M\_M24\*75 | | قطر |  | 24 | | طول |  | 7.5 | | طول رزوه شده |  | 4.1 | | تنش تسلیم |  | 9143.7 | | مقاومت نهایی کششی |  | 10540.3 | | واشر ابتدایی |  | ندارد | | واشر انتهایی |  | ندارد | | ضخامت مهره |  | 15 | | |  |  | | --- | --- | | نوع پیچ ها: | پيچ پر مقاومت | | برش ورقها با گیوتین: | بلي | | سوراخکاری با پانچ: | بلي | | پیچ ها تحت اثر خوردگی: | خير | | ضریب اصطکاک سطوح: | 0.30 | | | $MainImage$ | | |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل طول پيچ ها | | | | | | $level4$ | | | | شماره پيچهاي داراي مشکل: | | | هيچکدام | | |  | $MainBoltPic$ |  | | ندارد | | $MinRes$ | 45 34 | | |  | ّ$Frame$ | 45 45 |  | | $MaxRes$ | 45 53 | | |  | ّ$Frame$ |  | | ندارد | |  |  |  | | |  | 15 | | 15 15 |  | |  |  | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level4$ | | | | ّ$Frame$ | پیچ هایی که با المان های اطراف تداخل دارند: | | هيچکدام | $CollisionImg$ | | ّ$Frame$ | پیچ هایی که در انتقال نیرو سهم ندارند: | | هيچکدام | $ForceCarryImg$ | |

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| (بند10-2-9-3-2-پ) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از یکدیگر | | | $level4$ | | | | شماره بحرانی ترین پیچ ها: | 1, 2 | | |  |  | |  |  | | | 100 |  | |  | | 24 | |  |  | |  | | 72 mm | |  |  | | $BoltDistanceResult$ | | 100 72 | |  | $Frame11$ | |

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| (بند10-2-9-3-2-ج) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از یکدیگر | | | $level4$ | | | | |  |  | | | 100 | |  | |  |  | | | 20 | |  | | (پیچ ها تحت تاثیر خوردگی شدید قرار دارند) | |  | |  |  | $FC14$ | | (پیچ ها تحت تاثیر خوردگی کم و متوسط قرار دارند) | | 300 mm | |  | $FC24$ | | $CtrlPic$ | 100 300 | | |  | | $Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-2(ت)) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از لبه ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | | |  | | | | 50 | |  | | (ورق ها با گیوتین برش خورده اند) | | 48 mm | |  |  | $DistMin1Image$ | | (ورق ها با گیوتین برش نخورده اند) | |  | |  | $Distmin2Image$ | | $Result$ | | 50 48 | |  | | ّ$Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-2-ث) مبحث 10-1392 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از لبه ورق | | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 9 | | | | | | | | |  | | | | | | 55 | |  | |  | | | | | | 20 | |  | | پیچ ها تحت اثر خوردگی شدید قرار دارند | | |  | | |  |  | $DistMax1Image$ | | پیچ ها تحت اثر خوردگی کم و متوسط قرار دارند | | | | 150 mm | |  | $DistMax2Image$ | | $Result$ | | 55 150 | | | |  | | ّ$Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-7) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل اندرکنش پیچ ها و ورق ها | | | $level3$ | | | | | کنترل مقاومت اتکایی بین پیچ و ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | | 1 | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | المان | | ضخامت |  | 20 | | مقاومت نهایی کششی |  | 3700.0 | | حداقل فاصله خالص بین لبه سوراخ و لبه سوراخ دیگر یا لبهی آزاد ورق در راستای نیرو­­­ |  | 36 | | | | |  | | |  | | نیروی نهایی وارد بر جداره هر سوراخ | | 3.49 |  | | ضریب کاهش مقاومت | | | | 0.90 | | |  | | 28.37 | | | |  | | |  | | $Result$ | | | 3.49 28.37 *n* | |  | | ّ$Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-3-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق اتصال در کشش | | | $level3$ | | | | | کنترل مقاومت کششی بر روی سطح مقطع کلی ورق(Ag) | | | $level4$ | | | | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | اتصال دهنده | | ضخامت |  | 25 | | عرض موثر |  | 20.0 | | نیروی نهایی کششی کل ورق |  | 34.89 | | |  | | | |  | |  | |  | | | 50.00 | |  | |  | | ضریب کاهش مقاومت | | 1.00 | | | 120.00 | |  | |  | | Description: Description: $Result$ | 34.89 120.00 | | | |  | Description: Description: ّ$Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-4-3) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برش قالبی | | | | $level4$ | | | | شماره پيچ هاي درون مسير بحراني: | افقی، 1, 3, 5, 7, 9, 10، عمودی | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  |  | | ضخامت |  | 25 | | مقاومت وارد بر سطح گسيختگي |  | 34.89 | | | $MainImage$ | | | |  | | سطح مقطع خالص تحت کشش | | |  | | 26.63 |  | | سطح مقطع کلی تحت برش | | |  | | 116.25 | | سطح مقطع خالص تحت برش | | |  | | 83.63 | | ضریب توزیع تنش کششی | | |  | | 1.00 | | ضريب کاهش مقاومت | | |  | | 0.90 | | 239.32 | | |  | | | | $PlateBlockShear_Ctrl1$ | | | 0.15 | |  | Description: Description: ّ$Frame$ | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | تعدادی از مسیر های بحرانی کنترل شده | | | | | | | شماره پيچ هاي درون مسير بحراني |  |  |  |  |  | |  |  |  |  | | افقی، 2, 4, 6, 8, 10, 9، عمودی | 34.89 | 26.63 | 116.25 | 83.63 | 0.15 | | افقی، 2, 1, 3, 5, 7, 9, 10، عمودی | 34.89 | 44.38 | 116.25 | 83.63 | 0.12 | | | | | | |  | |

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| (بند10-2-9-3-3) مبحث 10-1392 | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی پیچ | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | |  | | بیشینه نیروی نهایی روی سطح برش پیچ | |  | | | 3.49 | |  | |  | | | نوع پیچ ها: پيچ پر مقاومت | | |  |  | | رفتار اصطکاکي | | | | پيچ ها تحت اثر توام کشش و برش نمي باشند | | | |

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| (بند10-2-9-3-5) مبحث 10-1392 | |  |  |  |  |  | | --- | --- | --- | --- | --- | | حداقل نیروی پیش تنیدگی پیچ مطابق جدول(10-2-9-7) | | 26.01 |  |  | | ضریب کاهش مقاومت |  | | 0.90 |  | | نسبت پیش تنیدگی متوسط پیچ ها به پیش تنیدگی حداقل پیچ ها | | | 1.13 |  | | ضریب اصطکاک | | | 0.30 |  | | ضریب کاهش به خاطر وجود ورق های پر کننده در بین قطعات متصل به یکدیگر | | | 1.00 |  | | تعداد صفحات لغزش |  | | 1 |  | |  | 7.94 | |  |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  | | --- | --- | --- | --- | |  | 0.44 |  |  | | $Result$ | 0.44 |  | ّ$Frame$ | |

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| (جدول 10-2-9-3) مبحث 10-1392 | |  |  |  |  | | --- | --- | --- | --- | | محاسبه و کنترل ورق زیر سری | | $level2$ | | | کنترل کفایت جوش نفوذی در ورق زیرسری | | $level3$ | | | $S8_C2$ | جوش شیاری تحت کشش عمود بر مقطع موثر قرار دارد. مطابق جدول 10-2-9-3 مبحث 10-1392، جوش شیاری با نفوذ کامل باید براساس فلز پایه کنترل شود؛ که در بخش دیگری آمده است. | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | گزارش محاسبات: بررسي روند طراحي پيچ هاي ورق زيرسري | | | | | کنترل پیچ ها | | $level3$ | | | مشخصات کلی پیچ ها | | $level4$ | | | |  |  |  | | --- | --- | --- | | مشخصات پیچ ها |  | BOLT\_A490M\_M24\*75 | | قطر |  | 24 | | طول |  | 7.5 | | طول رزوه شده |  | 4.1 | | تنش تسلیم |  | 9143.7 | | مقاومت نهایی کششی |  | 10540.3 | | واشر ابتدایی |  | ندارد | | واشر انتهایی |  | ندارد | | ضخامت مهره |  | 15 | | |  |  | | --- | --- | | نوع پیچ ها: | پيچ پر مقاومت | | برش ورقها با گیوتین: | بلي | | سوراخکاری با پانچ: | بلي | | پیچ ها تحت اثر خوردگی: | خير | | ضریب اصطکاک سطوح: | 0.30 | | | $MainImage$ | | |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل طول پيچ ها | | | | | | $level4$ | | | | شماره پيچهاي داراي مشکل: | | | هيچکدام | | |  | $MainBoltPic$ |  | | ندارد | | $MinRes$ | 45 34 | | |  | ّ$Frame$ | 45 45 |  | | $MaxRes$ | 45 53 | | |  | ّ$Frame$ |  | | ندارد | |  |  |  | | |  | 15 | | 15 15 |  | |  |  | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level4$ | | | | ّ$Frame$ | پیچ هایی که با المان های اطراف تداخل دارند: | | هيچکدام | $CollisionImg$ | | ّ$Frame$ | پیچ هایی که در انتقال نیرو سهم ندارند: | | هيچکدام | $ForceCarryImg$ | |

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| (بند10-2-9-3-2-پ) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از یکدیگر | | | $level4$ | | | | شماره بحرانی ترین پیچ ها: | 1, 2 | | |  |  | |  |  | | | 100 |  | |  | | 24 | |  |  | |  | | 72 mm | |  |  | | $BoltDistanceResult$ | | 100 72 | |  | $Frame11$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| (بند10-2-9-3-2-ج) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از یکدیگر | | | $level4$ | | | | |  |  | | | 100 | |  | |  |  | | | 20 | |  | | (پیچ ها تحت تاثیر خوردگی شدید قرار دارند) | |  | |  |  | $FC14$ | | (پیچ ها تحت تاثیر خوردگی کم و متوسط قرار دارند) | | 300 mm | |  | $FC24$ | | $CtrlPic$ | 100 300 | | |  | | $Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-2(ت)) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از لبه ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | | |  | | | | 50 | |  | | (ورق ها با گیوتین برش خورده اند) | | 48 mm | |  |  | $DistMin1Image$ | | (ورق ها با گیوتین برش نخورده اند) | |  | |  | $Distmin2Image$ | | $Result$ | | 50 48 | |  | | ّ$Frame$ | |

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| (بند10-2-9-3-2-ث) مبحث 10-1392 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از لبه ورق | | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 9 | | | | | | | | |  | | | | | | 55 | |  | |  | | | | | | 20 | |  | | پیچ ها تحت اثر خوردگی شدید قرار دارند | | |  | | |  |  | $DistMax1Image$ | | پیچ ها تحت اثر خوردگی کم و متوسط قرار دارند | | | | 150 mm | |  | $DistMax2Image$ | | $Result$ | | 55 150 | | | |  | | ّ$Frame$ | |

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| (بند10-2-9-3-7) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل اندرکنش پیچ ها و ورق ها | | | $level3$ | | | | | کنترل مقاومت اتکایی بین پیچ و ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | | 1 | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | المان | | ضخامت |  | 20 | | مقاومت نهایی کششی |  | 3700.0 | | حداقل فاصله خالص بین لبه سوراخ و لبه سوراخ دیگر یا لبهی آزاد ورق در راستای نیرو­­­ |  | 36 | | | | |  | | |  | | نیروی نهایی وارد بر جداره هر سوراخ | | 3.49 |  | | ضریب کاهش مقاومت | | | | 0.90 | | |  | | 28.37 | | | |  | | |  | | $Result$ | | | 3.49 28.37 *n* | |  | | ّ$Frame$ | |

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| (بند10-2-3-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق اتصال در کشش | | | $level3$ | | | | | کنترل مقاومت کششی بر روی سطح مقطع کلی ورق(Ag) | | | $level4$ | | | | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | اتصال دهنده | | ضخامت |  | 25 | | عرض موثر |  | 32.0 | | نیروی نهایی کششی کل ورق |  | 34.89 | | |  | | | |  | |  | |  | | | 80.00 | |  | |  | | ضریب کاهش مقاومت | | 1.00 | | | 192.00 | |  | |  | | Description: Description: $Result$ | 34.89 192.00 | | | |  | Description: Description: ّ$Frame$ | |

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| (بند10-2-9-4-3) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برش قالبی | | | | $level4$ | | | | شماره پيچ هاي درون مسير بحراني: | افقی، 9, 7, 5, 3, 1, 2، عمودی | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  |  | | ضخامت |  | 25 | | مقاومت وارد بر سطح گسيختگي |  | 34.89 | | | $MainImage$ | | | |  | | سطح مقطع خالص تحت کشش | | |  | | 41.63 |  | | سطح مقطع کلی تحت برش | | |  | | 113.75 | | سطح مقطع خالص تحت برش | | |  | | 81.13 | | ضریب توزیع تنش کششی | | |  | | 1.00 | | ضريب کاهش مقاومت | | |  | | 0.90 | | 286.03 | | |  | | | | $PlateBlockShear_Ctrl1$ | | | 0.12 | |  | Description: Description: ّ$Frame$ | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | تعدادی از مسیر های بحرانی کنترل شده | | | | | | | شماره پيچ هاي درون مسير بحراني |  |  |  |  |  | |  |  |  |  | | افقی، 10, 8, 6, 4, 2, 1، عمودی | 34.89 | 41.63 | 113.75 | 81.13 | 0.12 | | افقی، 9, 10, 8, 6, 4, 2, 1، عمودی | 34.89 | 59.38 | 113.75 | 81.13 | 0.10 | | | | | | |  | |

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| (بند10-2-9-3-3) مبحث 10-1392 | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی پیچ | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | |  | | بیشینه نیروی نهایی روی سطح برش پیچ | |  | | | 3.49 | |  | |  | | | نوع پیچ ها: پيچ پر مقاومت | | |  |  | | رفتار اصطکاکي | | | | پيچ ها تحت اثر توام کشش و برش نمي باشند | | | |

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| (بند10-2-9-3-5) مبحث 10-1392 | |  |  |  |  |  | | --- | --- | --- | --- | --- | | حداقل نیروی پیش تنیدگی پیچ مطابق جدول(10-2-9-7) | | 26.01 |  |  | | ضریب کاهش مقاومت |  | | 0.90 |  | | نسبت پیش تنیدگی متوسط پیچ ها به پیش تنیدگی حداقل پیچ ها | | | 1.13 |  | | ضریب اصطکاک | | | 0.30 |  | | ضریب کاهش به خاطر وجود ورق های پر کننده در بین قطعات متصل به یکدیگر | | | 1.00 |  | | تعداد صفحات لغزش |  | | 1 |  | |  | 7.94 | |  |  | |

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|  | |  |  |  |  | | --- | --- | --- | --- | |  | 0.44 |  |  | | $Result$ | 0.44 |  | ّ$Frame$ | |

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| |  |  |  | | --- | --- | --- | | گزارش محاسبات : بررسي سخت کننده نشيمن در اتصال تير به ستون گيردار - صلب | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 9.40 100 % 50 % = 4.70 | | | بعد جوش سخت کننده­ها به ستون | | = 8 | | بعد جوش ورق نشیمن به تیر | | = 8 | | حداقل فاصله آزاد مورد نیاز بعد از جوشکاری | | 5 | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | PG-30\*20\*2 | | عرض بال |  | 20.0 | | ضخامت بال |  | 20 | | ارتفاع |  | 30.0 | | ضخامت جان |  | 20 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.0 | | |  |  |  | | --- | --- | --- | | مشخصات سخت کننده | | | | ارتفاع سخت کننده |  | 21.0 | | عرض سخت کننده |  | 23.0 | | ضخامت سخت کننده |  | 12 | | تعداد سخت کننده ها |  | 2 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG/340x340x40 | | عرض ستون |  | 34.0 | | ضخامت ستون |  | 40 | | |  |  |  | | --- | --- | --- | | مشخصات ورق نشیمن | | | | پهنای ورق نشیمن |  | 32.0 | | ضخامت ورق نشیمن |  | 25 | | طول ورق نشیمن |  | 1.5 | | | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | Description: Description: $S3_C1$ | 25 12 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C2$ | 24 20 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C3$ | 34.0 32.0 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C4$ | 25 20 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C5$ | 32.0 22.6 | |  | Description: Description: $Frame$ | |
| |  | | --- | |  | | (بند 10-2-9-10-2) مبحث 10-1392 | | (بند 10-2-9-10-3) مبحث 10-1392 |   م.ازهری و س.ر. میرقادری (1389)، میرقادری طراحی سازه های فولادی-جلد سوم -اتصالات، انتشارات ارکان دانش،ص341 | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل عرض نشیمن برای جلوگیری از تسلیم و لهیدگی جان تحت اثر بارهای متمرکز | | | $level3$ | | | | | | | | تعیین حداقل عرض ورق نشیمن بر مبنای تسلیم موضعی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | | | 1.00 | | | |  | | حداقل عرض نشیمن بر اساس تسلیم موضعی جان | | 2.0 | | |  | | | |  | | کنترل حداقل عرض ورق نشیمن بر مبنای لهیدگی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | 0.75 | | | | | |  | |  | | | | | |  | Description: Description: $Frame$ |  | $S4_C2$ | |  | | | | | |  | Description: Description: $Frame$ | $S4_C3$ | |  |  | | | -9.4 | | | | |  | | حداقل طول نشیمن تیر | 2.0 | | |  | | | | |  | | $S4_C1$ | 23.0 3.5 | | |  | | | | | Description: Description: $Frame$ | |
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| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل کفایت ابعاد ورق(های) سخت کننده (بر اساس روش پلاستیک) | | | $level2$ | | | | | کنترل کمانش موضعی سخت کننده (ها) | | $level4$ | | | | | | Description: Description: $S5_C3$ |  | | | Description: Description: $Frame$ |  | Description: Description: $S5_C2$ | | Description: Description: $S5_C5$ | 1.10 2.0 19.17 23.47 | | | Description: Description: $Frame$ | Description: Description: $S5_C4$ | | Description: Description: $S5_C50$ |  | | | Description: Description: $Frame$ | Description: Description: $S5_C40$ | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت سخت کننده(ها) | | | | |  | | | کنترل مقاومت اتکایی | | | | |  | | | سطح مقطع | | 51.60 | | |  |  | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | مقاومت اتکایی طرح | | 167.18 | | |  |  | | نسبت تنش اتکایی | | 0.03 | | |  |  | | Description: Description: $S6_C1$ | | 0.03 | | |  | *Description: Description: $Frame$* | | کنترل مقاومت تسلیم | | | | | $level4$ | | | فاصله برون محوری بار از بر ستون | | 22.0 | | |  |  | | فاصله برونمحوری بار تا وسط عرض سختکننده ­­ | | | 10.5 | |  |  | |  | | 0.45 | | |  |  | | ضریب کاهش مقاومت | | 0.90 | | | |  | | مقاومت طراحی سختکننده(ها)­­ | 23.91 | | |  | |  | | نسبت مقاومت | | 0.20 | | |  |  | | Description: Description: $S6_C2$ | | 0.20 | | |  | *Description: Description: $Frame$* | |
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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل نسبت تنش در جوش سخت کننده (ها) به بال ستون | | | | $level3$ | | | | محاسبه اندر کنش تنش های جوش در بر ستون | | | | $level4$ | | | | لنگر خمشی نهایی در بر ستون | | 1.03 | | |  |  | | تعداد سخت­کننده (ها) | |  | | | 2 |  | | طول جوش شده ورق نشیمن به بال ستون | | 29.6 | | |  |  | | مدول الاستیک مقطع | 469.11 | |  | | |  | | تنش کششی نهایی ناشی از خمش | | 220.5 | | |  |  | | تنش برشی نهایی ناشی از واکنش تکیه گاهی | | 41.4 | | |  |  | | اندر کنش تنش های نهایی | | 224.4 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش گوشه | | $level4$ | | | | | | ضریب کاهش مقاومت |  | | | | 0.75 |  | | ارزش جوش | 801.9 | |  | | |  | | نسبت تنش جوش | 0.28 | | |  | |  | | Description: Description: $S7_C1$ | 0.28 | | |  | | *Description: Description: $Frame$* | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش گوشه | | $level4$ | | | | | ضخامت سخت کننده |  | | 12 | |  | | ضخامت ستون |  | | 40 | |  | | حداقل بعد جوش |  | | 5 | |  | | حداکثر بعد جوش |  | | 12 | |  | | بعد جوش |  | | 8 | |  | | Description: Description: $S8_C1$ | 5 8 12 | | |  | Description: Description: $Frame$ | |

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| |  |  |  | | --- | --- | --- | |  | | | | گزارش محاسبات : بررسي نبشي جان در اتصال تير به ستون گيردار - صلب | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 9.40 100 % 50 % = 4.70 | | | بعد جوش اتصال نبشی به تیر | | = 5 mm | | بعد جوش اتصال نبشی به ستون | | = 6 mm | | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | PG-30\*20\*2 | | عرض بال |  | 20.0 | | ضخامت بال |  | 20 | | ارتفاع |  | 30.0 | | ضخامت جان |  | 20 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.0 | | |  |  |  | | --- | --- | --- | | مشخصات نبشی | | | | نام نبشی |  | 60x60x6 | | طول نبشی |  | 22.0 | | بعد اول بال نبشی |  | 6.0 | | بعد دوم بال نبشی |  | 6.0 | | ضخامت نبشی |  | 6 | | تعداد |  | 2 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG/340x340x40 | | عرض ستون |  | 34.0 | | ضخامت ستون |  | 40 | |  | | | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | کنترل بیرون زدگی ارتفاع نبشی از ارتفاع موثر تیر |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: $S3_C1$ | 22.0 25.0 |  | Description: Description: $Frame$ |  |  |  |  |  | | --- | --- | --- | --- | | کنترل بیرون زدگی عرض نبشی از ستون |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: Description: Description: Description: $S3_C2$ | 6.0 15.5 |  | Description: Description: Description: Description: Description: $Frame$ | |
| (بند 10-2-9-4-2 (الف)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی نبشی | | $level3$ | | | | | نیروی برشی نهایی وارد بر نبشی | 2.35 | | |  |  | | ضریب کاهش مقاومت |  | | | 1.00 |  | | مقاومت برشی طراحی | 19.01 | |  | |  | |  | 0.25 | | |  |  | | Description: Description: $S4_C3$ | 0.25 | | |  | Description: Description: $Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش اتصال نبشی به تیر | | | $level3$ | | | | محاسبه اندرکنش تنش های جوش | | | $level4$ | | | | ارتفاع جوش |  | | | 22.0 |  | | عرض جوش | 4.5 | | |  |  | | سطح مقطع جوش در واحد طول | 62.0 | | |  |  | | فاصله مرکز سطح جوش از خط قائم آن | 0.7 | | |  |  | | برون محوری پیچی | 5.3 | | |  |  | | ممان اینرسی قطبی | 2023.86 | | |  |  | | لنگر پیچشی نهایی | 0.13 | | |  |  | | تنش برشی نهایی جوش در جهت قائم | 75.8 | | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت قائم | | 23.9 | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت افقی | | 68.3 | |  |  | | اندر کنش تنش های نهایی | 120.9 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش | | | $level4$ | | | | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | ارزش جوش | 501.2 | | |  | |  | | نسبت تنش جوش | | 0.24 | | |  |  | | Description: Description: $S5_C1$ | | 0.24 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب))مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت تیر در محل اتصال نبشی |  | | 20 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 5 | |  | | Description: Description: $S5_C2$ | 3 5 6 | | |  | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش B-جوش اتصال نبشی به ستون | | $level3$ | | | | محاسبه اندرکنش تنش های جوش B(بر اساس رابطه بلاجت) | | $level4$ | | | | سطح مقطع جوش در واحد طول | 44.0 | |  |  | | تنش برشی نهایی جوش در جهت قائم | 106.9 | |  |  | | لنگر پیچشی نهایی وارد بر جوش | 0.16 | |  |  | | بیشینه تنش کششی نهایی ناشی از پیچش در جهت افقی | 122.4 | |  |  | | اندر کنش تنش های نهایی | 162.5 | |  |  | |
| (بند 10-2-9-2- (ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوشB | | $level4$ | | | | | ضریب کاهش مقاومت |  | | | 0.75 |  | | ارزش جوش | 601.4 | |  | |  | | نسبت تنش جوش | 0.27 | | |  |  | | Description: Description: $S6_C1$ | 0.27 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش B | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت ستون در محل اتصال نبشی |  | | 40 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 6 | |  | | Description: Description: $S6_C2$ | 3 6 6 | | |  | $Frame$ | |

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| --- | --- |
| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |

|  |  |
| --- | --- |
| نام اتصال تیر به ستون: | etesal3 |

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| |  |  | | --- | --- | | گزارش محاسبات : بررسي ورق هاي بالاسري و پائين سري در اتصال تير به ستون گيردار - صلب | | | مشخصات کلی گزارش | $level3$ | | |  |  |  | | --- | --- | --- | | تنش تسلیم فولاد |  | 2400.0 | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | حداقل فاصله آزاد مورد نیاز بعد از جوشکاری |  | 0.5 | | |  |  | | --- | --- | | واکنش تکیه گاهی |  | | = 2.26 100 % = 2.26 | | | بعد جوش |  | | ورق بالاسری | = ندارد | | ورق زیرسری | = 8 ندارد | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level3$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE240 | | عرض بال |  | 12.0 | | ضخامت بال |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | ورق بالا سری | | | | عرض کوچکتر |  | 12.0 | | عرض بزرگتر |  | 13.0 | | طول کلی |  | 25.0 | | طول جوش نشده |  | 0.1 | | ضخامت |  | 18 | | | $PlateType$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG-BOX600\*600\*40 | | عرض ستون |  | 60.0 | | ضخامت ستون |  | 40 | | |  |  |  | | --- | --- | --- | | ورق زیر سری | | | | عرض |  | 13.0 | | طول کلی |  | 25.0 | | طول جوش نشده |  | 1.5 | | ضخامت |  | 18 | | | |

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|  | |  |  | | --- | --- | | کنترل هندسی اجزاء اتصال | $level2$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی ورق بالا سری | | $level4$ | | | | $S3_C2$ | 13.0 60.0 | |  | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی ورق زیر سری | | $level4$ | | | | $S3_C2$ | 13.0 60.0 | |  | $Frame$ | |

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| (جدول 10-2-9-3) مبحث 10-1392 | |  |  |  |  | | --- | --- | --- | --- | | محاسبه و کنترل ورق بالاسری | | $level2$ | | | کنترل کفایت جوش نفوذی در ورق بالاسری | | $level3$ | | | $S8_C1$ | جوش شیاری تحت کشش عمود بر مقطع موثر قرار دارد. مطابق جدول 10-2-9-3 مبحث 10-1392، جوش شیاری با نفوذ کامل باید براساس فلز پایه کنترل شود؛ که در بخش دیگری آمده است. | |  | |

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| |  |  |  |  | | --- | --- | --- | --- | | گزارش محاسبات: بررسي روند طراحي پيچ هاي ورق بالاسري | | | | | کنترل پیچ ها | | $level3$ | | | مشخصات کلی پیچ ها | | $level4$ | | | |  |  |  | | --- | --- | --- | | مشخصات پیچ ها |  | BOLT\_A490M\_M16\*45 | | قطر |  | 16 | | طول |  | 4.5 | | طول رزوه شده |  | 3.1 | | تنش تسلیم |  | 9143.7 | | مقاومت نهایی کششی |  | 10540.3 | | واشر ابتدایی |  | ندارد | | واشر انتهایی |  | ندارد | | ضخامت مهره |  | 10 | | |  |  | | --- | --- | | نوع پیچ ها: | پيچ پر مقاومت | | برش ورقها با گیوتین: | بلي | | سوراخکاری با پانچ: | بلي | | پیچ ها تحت اثر خوردگی: | خير | | ضریب اصطکاک سطوح: | 0.30 | | | $MainImage$ | | |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل طول پيچ ها | | | | | | $level4$ | | | | شماره پيچهاي داراي مشکل: | | | هيچکدام | | |  | $MainBoltPic$ |  | | ندارد | | $MinRes$ | 28 14 | | |  | ّ$Frame$ | 28 28 |  | | $MaxRes$ | 28 30 | | |  | ّ$Frame$ |  | | ندارد | |  |  |  | | |  | 10 | | 7 7 |  | |  |  | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level4$ | | | | ّ$Frame$ | پیچ هایی که با المان های اطراف تداخل دارند: | | هيچکدام | $CollisionImg$ | | ّ$Frame$ | پیچ هایی که در انتقال نیرو سهم ندارند: | | هيچکدام | $ForceCarryImg$ | |

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| (بند10-2-9-3-2-پ) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از یکدیگر | | | $level4$ | | | | شماره بحرانی ترین پیچ ها: | 1, 3 | | |  |  | |  |  | | | 50 |  | |  | | 16 | |  |  | |  | | 48 mm | |  |  | | $BoltDistanceResult$ | | 50 48 | |  | $Frame11$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| (بند10-2-9-3-2-ج) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از یکدیگر | | | $level4$ | | | | |  |  | | | 55 | |  | |  |  | | | 10 | |  | | (پیچ ها تحت تاثیر خوردگی شدید قرار دارند) | |  | |  |  | $FC14$ | | (پیچ ها تحت تاثیر خوردگی کم و متوسط قرار دارند) | | 235 mm | |  | $FC24$ | | $CtrlPic$ | 55 235 | | |  | | $Frame$ | |

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| (بند10-2-9-3-2(ت)) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از لبه ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | | |  | | | | 33 | |  | | (ورق ها با گیوتین برش خورده اند) | | 32 mm | |  |  | $DistMin1Image$ | | (ورق ها با گیوتین برش نخورده اند) | |  | |  | $Distmin2Image$ | | $Result$ | | 33 32 | |  | | ّ$Frame$ | |

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| (بند10-2-9-3-2-ث) مبحث 10-1392 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از لبه ورق | | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 7 | | | | | | | | |  | | | | | | 45 | |  | |  | | | | | | 10 | |  | | پیچ ها تحت اثر خوردگی شدید قرار دارند | | |  | | |  |  | $DistMax1Image$ | | پیچ ها تحت اثر خوردگی کم و متوسط قرار دارند | | | | 118 mm | |  | $DistMax2Image$ | | $Result$ | | 45 118 | | | |  | | ّ$Frame$ | |

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| (بند10-2-9-3-7) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل اندرکنش پیچ ها و ورق ها | | | $level3$ | | | | | کنترل مقاومت اتکایی بین پیچ و ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | | 1 | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | المان | | ضخامت |  | 10 | | مقاومت نهایی کششی |  | 3700.0 | | حداقل فاصله خالص بین لبه سوراخ و لبه سوراخ دیگر یا لبهی آزاد ورق در راستای نیرو­­­ |  | 30 | | | | |  | | |  | | نیروی نهایی وارد بر جداره هر سوراخ | | 1.09 |  | | ضریب کاهش مقاومت | | | | 0.90 | | |  | | 11.75 | | | |  | | |  | | $Result$ | | | 1.09 11.75 *n* | |  | | ّ$Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-3-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق اتصال در کشش | | | $level3$ | | | | | کنترل مقاومت کششی بر روی سطح مقطع کلی ورق(Ag) | | | $level4$ | | | | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | اتصال دهنده | | ضخامت |  | 18 | | عرض موثر |  | 12.2 | | نیروی نهایی کششی کل ورق |  | 8.75 | | |  | | | |  | |  | |  | | | 21.92 | |  | |  | | ضریب کاهش مقاومت | | 1.00 | | | 52.62 | |  | |  | | Description: Description: $Result$ | 8.75 52.62 | | | |  | Description: Description: ّ$Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-4-3) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برش قالبی | | | | $level4$ | | | | شماره پيچ هاي درون مسير بحراني: | افقی، 1, 3, 5, 7, 8، عمودی | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  |  | | ضخامت |  | 18 | | مقاومت وارد بر سطح گسيختگي |  | 8.75 | | | $MainImage$ | | | |  | | سطح مقطع خالص تحت کشش | | |  | | 10.51 |  | | سطح مقطع کلی تحت برش | | |  | | 36.90 | | سطح مقطع خالص تحت برش | | |  | | 24.30 | | ضریب توزیع تنش کششی | | |  | | 1.00 | | ضريب کاهش مقاومت | | |  | | 0.90 | | 82.83 | | |  | | | | $PlateBlockShear_Ctrl1$ | | | 0.11 | |  | Description: Description: ّ$Frame$ | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | تعدادی از مسیر های بحرانی کنترل شده | | | | | | | شماره پيچ هاي درون مسير بحراني |  |  |  |  |  | |  |  |  |  | | افقی، 2, 4, 6, 8, 7، عمودی | 8.75 | 10.51 | 36.90 | 24.30 | 0.11 | | افقی، 2, 1, 3, 5, 7, 8، عمودی | 8.75 | 16.81 | 36.90 | 24.30 | 0.08 | | | | | | |  | |

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| (بند10-2-9-3-3) مبحث 10-1392 | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی پیچ | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | |  | | بیشینه نیروی نهایی روی سطح برش پیچ | |  | | | 1.09 | |  | |  | | | نوع پیچ ها: پيچ پر مقاومت | | |  |  | | رفتار اصطکاکي | | | | پيچ ها تحت اثر توام کشش و برش نمي باشند | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-5) مبحث 10-1392 | |  |  |  |  |  | | --- | --- | --- | --- | --- | | حداقل نیروی پیش تنیدگی پیچ مطابق جدول(10-2-9-7) | | 11.56 |  |  | | ضریب کاهش مقاومت |  | | 0.90 |  | | نسبت پیش تنیدگی متوسط پیچ ها به پیش تنیدگی حداقل پیچ ها | | | 1.13 |  | | ضریب اصطکاک | | | 0.30 |  | | ضریب کاهش به خاطر وجود ورق های پر کننده در بین قطعات متصل به یکدیگر | | | 1.00 |  | | تعداد صفحات لغزش |  | | 1 |  | |  | 3.53 | |  |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  | | --- | --- | --- | --- | |  | 0.31 |  |  | | $Result$ | 0.31 |  | ّ$Frame$ | |

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| (جدول 10-2-9-3) مبحث 10-1392 | |  |  |  |  | | --- | --- | --- | --- | | محاسبه و کنترل ورق زیر سری | | $level2$ | | | کنترل کفایت جوش نفوذی در ورق زیرسری | | $level3$ | | | $S8_C2$ | جوش شیاری تحت کشش عمود بر مقطع موثر قرار دارد. مطابق جدول 10-2-9-3 مبحث 10-1392، جوش شیاری با نفوذ کامل باید براساس فلز پایه کنترل شود؛ که در بخش دیگری آمده است. | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | گزارش محاسبات: بررسي روند طراحي پيچ هاي ورق زيرسري | | | | | کنترل پیچ ها | | $level3$ | | | مشخصات کلی پیچ ها | | $level4$ | | | |  |  |  | | --- | --- | --- | | مشخصات پیچ ها |  | BOLT\_A490M\_M16\*45 | | قطر |  | 16 | | طول |  | 4.5 | | طول رزوه شده |  | 3.1 | | تنش تسلیم |  | 9143.7 | | مقاومت نهایی کششی |  | 10540.3 | | واشر ابتدایی |  | ندارد | | واشر انتهایی |  | ندارد | | ضخامت مهره |  | 10 | | |  |  | | --- | --- | | نوع پیچ ها: | پيچ پر مقاومت | | برش ورقها با گیوتین: | بلي | | سوراخکاری با پانچ: | بلي | | پیچ ها تحت اثر خوردگی: | خير | | ضریب اصطکاک سطوح: | 0.30 | | | $MainImage$ | | |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل طول پيچ ها | | | | | | $level4$ | | | | شماره پيچهاي داراي مشکل: | | | هيچکدام | | |  | $MainBoltPic$ |  | | ندارد | | $MinRes$ | 28 14 | | |  | ّ$Frame$ | 28 28 |  | | $MaxRes$ | 28 30 | | |  | ّ$Frame$ |  | | ندارد | |  |  |  | | |  | 10 | | 7 7 |  | |  |  | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level4$ | | | | ّ$Frame$ | پیچ هایی که با المان های اطراف تداخل دارند: | | هيچکدام | $CollisionImg$ | | ّ$Frame$ | پیچ هایی که در انتقال نیرو سهم ندارند: | | هيچکدام | $ForceCarryImg$ | |

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| (بند10-2-9-3-2-پ) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از یکدیگر | | | $level4$ | | | | شماره بحرانی ترین پیچ ها: | 1, 3 | | |  |  | |  |  | | | 50 |  | |  | | 16 | |  |  | |  | | 48 mm | |  |  | | $BoltDistanceResult$ | | 50 48 | |  | $Frame11$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-2-ج) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از یکدیگر | | | $level4$ | | | | |  |  | | | 55 | |  | |  |  | | | 10 | |  | | (پیچ ها تحت تاثیر خوردگی شدید قرار دارند) | |  | |  |  | $FC14$ | | (پیچ ها تحت تاثیر خوردگی کم و متوسط قرار دارند) | | 235 mm | |  | $FC24$ | | $CtrlPic$ | 55 235 | | |  | | $Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-2(ت)) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل حداقل فاصله پیچ ها از لبه ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | | |  | | | | 33 | |  | | (ورق ها با گیوتین برش خورده اند) | | 32 mm | |  |  | $DistMin1Image$ | | (ورق ها با گیوتین برش نخورده اند) | |  | |  | $Distmin2Image$ | | $Result$ | | 33 32 | |  | | ّ$Frame$ | |

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| (بند10-2-9-3-2-ث) مبحث 10-1392 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل حداکثر فاصله پیچ ها از لبه ورق | | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 7 | | | | | | | | |  | | | | | | 45 | |  | |  | | | | | | 10 | |  | | پیچ ها تحت اثر خوردگی شدید قرار دارند | | |  | | |  |  | $DistMax1Image$ | | پیچ ها تحت اثر خوردگی کم و متوسط قرار دارند | | | | 118 mm | |  | $DistMax2Image$ | | $Result$ | | 45 118 | | | |  | | ّ$Frame$ | |

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| (بند10-2-9-3-7) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل اندرکنش پیچ ها و ورق ها | | | $level3$ | | | | | کنترل مقاومت اتکایی بین پیچ و ورق | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | | 1 | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | المان | | ضخامت |  | 10 | | مقاومت نهایی کششی |  | 3700.0 | | حداقل فاصله خالص بین لبه سوراخ و لبه سوراخ دیگر یا لبهی آزاد ورق در راستای نیرو­­­ |  | 30 | | | | |  | | |  | | نیروی نهایی وارد بر جداره هر سوراخ | | 1.09 |  | | ضریب کاهش مقاومت | | | | 0.90 | | |  | | 11.75 | | | |  | | |  | | $Result$ | | | 1.09 11.75 *n* | |  | | ّ$Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-3-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق اتصال در کشش | | | $level3$ | | | | | کنترل مقاومت کششی بر روی سطح مقطع کلی ورق(Ag) | | | $level4$ | | | | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  | اتصال دهنده | | ضخامت |  | 18 | | عرض موثر |  | 13.0 | | نیروی نهایی کششی کل ورق |  | 8.75 | | |  | | | |  | |  | |  | | | 23.40 | |  | |  | | ضریب کاهش مقاومت | | 1.00 | | | 56.16 | |  | |  | | Description: Description: $Result$ | 8.75 56.16 | | | |  | Description: Description: ّ$Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-4-3) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برش قالبی | | | | $level4$ | | | | شماره پيچ هاي درون مسير بحراني: | افقی، 7, 5, 3, 1, 2، عمودی | | | | |  | | |  |  |  | | --- | --- | --- | | مشخصات ورق | | | | نوع ورق |  |  | | ضخامت |  | 18 | | مقاومت وارد بر سطح گسيختگي |  | 8.75 | | | $MainImage$ | | | |  | | سطح مقطع خالص تحت کشش | | |  | | 11.25 |  | | سطح مقطع کلی تحت برش | | |  | | 35.10 | | سطح مقطع خالص تحت برش | | |  | | 22.50 | | ضریب توزیع تنش کششی | | |  | | 1.00 | | ضريب کاهش مقاومت | | |  | | 0.90 | | 82.42 | | |  | | | | $PlateBlockShear_Ctrl1$ | | | 0.11 | |  | Description: Description: ّ$Frame$ | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | تعدادی از مسیر های بحرانی کنترل شده | | | | | | | شماره پيچ هاي درون مسير بحراني |  |  |  |  |  | |  |  |  |  | | افقی، 8, 6, 4, 2, 1، عمودی | 8.75 | 11.25 | 35.10 | 22.50 | 0.11 | | افقی، 7, 8, 6, 4, 2, 1، عمودی | 8.75 | 17.55 | 35.10 | 22.50 | 0.08 | | | | | | |  | |

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| (بند10-2-9-3-3) مبحث 10-1392 | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی پیچ | | | | $level4$ | | | | | شماره بحرانی ترین پیچ: | 1 | | | | | |  | | بیشینه نیروی نهایی روی سطح برش پیچ | |  | | | 1.09 | |  | |  | | | نوع پیچ ها: پيچ پر مقاومت | | |  |  | | رفتار اصطکاکي | | | | پيچ ها تحت اثر توام کشش و برش نمي باشند | | | |

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| (بند10-2-9-3-5) مبحث 10-1392 | |  |  |  |  |  | | --- | --- | --- | --- | --- | | حداقل نیروی پیش تنیدگی پیچ مطابق جدول(10-2-9-7) | | 11.56 |  |  | | ضریب کاهش مقاومت |  | | 0.90 |  | | نسبت پیش تنیدگی متوسط پیچ ها به پیش تنیدگی حداقل پیچ ها | | | 1.13 |  | | ضریب اصطکاک | | | 0.30 |  | | ضریب کاهش به خاطر وجود ورق های پر کننده در بین قطعات متصل به یکدیگر | | | 1.00 |  | | تعداد صفحات لغزش |  | | 1 |  | |  | 3.53 | |  |  | |

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|  | |  |  |  |  | | --- | --- | --- | --- | |  | 0.31 |  |  | | $Result$ | 0.31 |  | ّ$Frame$ | |

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| |  |  |  | | --- | --- | --- | | گزارش محاسبات : بررسي سخت کننده نشيمن در اتصال تير به ستون گيردار - صلب | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 1.63 100 % 50 % = 0.82 | | | بعد جوش سخت کننده­ها به ستون | | = 5 | | بعد جوش ورق نشیمن به تیر | | = 8 | | حداقل فاصله آزاد مورد نیاز بعد از جوشکاری | | 5 | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE240 | | عرض بال |  | 12.0 | | ضخامت بال |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات سخت کننده | | | | ارتفاع سخت کننده |  | 9.0 | | عرض سخت کننده |  | 9.0 | | ضخامت سخت کننده |  | 6 | | تعداد سخت کننده ها |  | 1 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG-BOX600\*600\*40 | | عرض ستون |  | 60.0 | | ضخامت ستون |  | 40 | | |  |  |  | | --- | --- | --- | | مشخصات ورق نشیمن | | | | پهنای ورق نشیمن |  | 13.0 | | ضخامت ورق نشیمن |  | 18 | | طول ورق نشیمن |  | 1.5 | | | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | Description: Description: $S3_C1$ | 18 6 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C2$ | 6 6 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C3$ | 60.0 13.0 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C4$ | 18 10 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C5$ | 13.0 14.6 | |  | Description: Description: $Frame$ | |
| |  | | --- | |  | | (بند 10-2-9-10-2) مبحث 10-1392 | | (بند 10-2-9-10-3) مبحث 10-1392 |   م.ازهری و س.ر. میرقادری (1389)، میرقادری طراحی سازه های فولادی-جلد سوم -اتصالات، انتشارات ارکان دانش،ص341 | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل عرض نشیمن برای جلوگیری از تسلیم و لهیدگی جان تحت اثر بارهای متمرکز | | | $level3$ | | | | | | | | تعیین حداقل عرض ورق نشیمن بر مبنای تسلیم موضعی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | | | 1.00 | | | |  | | حداقل عرض نشیمن بر اساس تسلیم موضعی جان | | 2.5 | | |  | | | |  | | کنترل حداقل عرض ورق نشیمن بر مبنای لهیدگی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | 0.75 | | | | | |  | |  | | | | | |  | Description: Description: $Frame$ |  | $S4_C2$ | |  | | | | | |  | Description: Description: $Frame$ | $S4_C3$ | |  |  | | | -14.6 | | | | |  | | حداقل طول نشیمن تیر | 2.5 | | |  | | | | |  | | $S4_C1$ | 9.0 4.0 | | |  | | | | | Description: Description: $Frame$ | |
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| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل کفایت ابعاد ورق(های) سخت کننده (بر اساس روش پلاستیک) | | | $level2$ | | | | | کنترل کمانش موضعی سخت کننده (ها) | | $level4$ | | | | | | Description: Description: $S5_C3$ | 1.00 15.00 21.43 | | | Description: Description: $Frame$ |  | Description: Description: $S5_C2$ | | Description: Description: $S5_C5$ | 2.0 | | | Description: Description: $Frame$ | Description: Description: $S5_C4$ | | Description: Description: $S5_C50$ |  | | | Description: Description: $Frame$ | Description: Description: $S5_C40$ | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت سخت کننده(ها) | | | | |  | | | کنترل مقاومت اتکایی | | | | |  | | | سطح مقطع | | 4.50 | | |  |  | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | مقاومت اتکایی طرح | | 14.58 | | |  |  | | نسبت تنش اتکایی | | 0.06 | | |  |  | | Description: Description: $S6_C1$ | | 0.06 | | |  | *Description: Description: $Frame$* | | کنترل مقاومت تسلیم | | | | | $level4$ | | | فاصله برون محوری بار از بر ستون | | 7.8 | | |  |  | | فاصله برونمحوری بار تا وسط عرض سختکننده ­­ | | | 3.3 | |  |  | |  | | 0.50 | | |  |  | | ضریب کاهش مقاومت | | 0.90 | | | |  | | مقاومت طراحی سختکننده(ها)­­ | 2.98 | | |  | |  | | نسبت مقاومت | | 0.27 | | |  |  | | Description: Description: $S6_C2$ | | 0.27 | | |  | *Description: Description: $Frame$* | |
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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل نسبت تنش در جوش سخت کننده (ها) به بال ستون | | | | $level3$ | | | | محاسبه اندر کنش تنش های جوش در بر ستون | | | | $level4$ | | | | لنگر خمشی نهایی در بر ستون | | 0.06 | | |  |  | | تعداد سخت­کننده (ها) | |  | | | 1 |  | | طول جوش شده ورق نشیمن به بال ستون | | 12.4 | | |  |  | | مدول الاستیک مقطع | 101.40 | |  | | |  | | تنش کششی نهایی ناشی از خمش | | 62.4 | | |  |  | | تنش برشی نهایی ناشی از واکنش تکیه گاهی | | 26.8 | | |  |  | | اندر کنش تنش های نهایی | | 68.0 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش گوشه | | $level4$ | | | | | | ضریب کاهش مقاومت |  | | | | 0.75 |  | | ارزش جوش | 501.2 | |  | | |  | | نسبت تنش جوش | 0.14 | | |  | |  | | Description: Description: $S7_C1$ | 0.14 | | |  | | *Description: Description: $Frame$* | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش گوشه | | $level4$ | | | | | ضخامت سخت کننده |  | | 6 | |  | | ضخامت ستون |  | | 40 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 5 | |  | | Description: Description: $S8_C1$ | 3 5 6 | | |  | Description: Description: $Frame$ | |

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| |  |  |  | | --- | --- | --- | |  | | | | گزارش محاسبات : بررسي نبشي جان در اتصال تير به ستون گيردار - صلب | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 1.63 100 % 50 % = 0.82 | | | بعد جوش اتصال نبشی به تیر | | = 3 mm | | بعد جوش اتصال نبشی به ستون | | = 4 mm | | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE240 | | عرض بال |  | 12.0 | | ضخامت بال |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات نبشی | | | | نام نبشی |  | 60x60x6 | | طول نبشی |  | 9.0 | | بعد اول بال نبشی |  | 6.0 | | بعد دوم بال نبشی |  | 6.0 | | ضخامت نبشی |  | 6 | | تعداد |  | 2 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG-BOX600\*600\*40 | | عرض ستون |  | 60.0 | | ضخامت ستون |  | 40 | |  | | | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | کنترل بیرون زدگی ارتفاع نبشی از ارتفاع موثر تیر |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: $S3_C1$ | 9.0 18.0 |  | Description: Description: $Frame$ |  |  |  |  |  | | --- | --- | --- | --- | | کنترل بیرون زدگی عرض نبشی از ستون |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: Description: Description: Description: $S3_C2$ | 6.0 29.2 |  | Description: Description: Description: Description: Description: $Frame$ | |
| (بند 10-2-9-4-2 (الف)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی نبشی | | $level3$ | | | | | نیروی برشی نهایی وارد بر نبشی | 0.41 | | |  |  | | ضریب کاهش مقاومت |  | | | 1.00 |  | | مقاومت برشی طراحی | 7.78 | |  | |  | |  | 0.10 | | |  |  | | Description: Description: $S4_C3$ | 0.10 | | |  | Description: Description: $Frame$ | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش اتصال نبشی به تیر | | | $level3$ | | | | محاسبه اندرکنش تنش های جوش | | | $level4$ | | | | ارتفاع جوش |  | | | 9.0 |  | | عرض جوش | 4.5 | | |  |  | | سطح مقطع جوش در واحد طول | 36.0 | | |  |  | | فاصله مرکز سطح جوش از خط قائم آن | 1.1 | | |  |  | | برون محوری پیچی | 4.9 | | |  |  | | ممان اینرسی قطبی | 280.97 | | |  |  | | لنگر پیچشی نهایی | 0.02 | | |  |  | | تنش برشی نهایی جوش در جهت قائم | 22.7 | | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت قائم | | 23.9 | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت افقی | | 31.9 | |  |  | | اندر کنش تنش های نهایی | 56.4 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش | | | $level4$ | | | | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | ارزش جوش | 300.7 | | |  | |  | | نسبت تنش جوش | | 0.19 | | |  |  | | Description: Description: $S5_C1$ | | 0.19 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب))مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت تیر در محل اتصال نبشی |  | | 6 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 3 | |  | | Description: Description: $S5_C2$ | 3 3 6 | | |  | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش B-جوش اتصال نبشی به ستون | | $level3$ | | | | محاسبه اندرکنش تنش های جوش B(بر اساس رابطه بلاجت) | | $level4$ | | | | سطح مقطع جوش در واحد طول | 18.0 | |  |  | | تنش برشی نهایی جوش در جهت قائم | 45.3 | |  |  | | لنگر پیچشی نهایی وارد بر جوش | 0.03 | |  |  | | بیشینه تنش کششی نهایی ناشی از پیچش در جهت افقی | 114.4 | |  |  | | اندر کنش تنش های نهایی | 123.1 | |  |  | |
| (بند 10-2-9-2- (ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوشB | | $level4$ | | | | | ضریب کاهش مقاومت |  | | | 0.75 |  | | ارزش جوش | 400.9 | |  | |  | | نسبت تنش جوش | 0.31 | | |  |  | | Description: Description: $S6_C1$ | 0.31 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش B | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت ستون در محل اتصال نبشی |  | | 40 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 4 | |  | | Description: Description: $S6_C2$ | 3 4 6 | | |  | $Frame$ | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |

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| نام اتصال تیر به ستون: | mafsali |

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| |  |  |  | | --- | --- | --- | | گزارش محاسبات : بررسي سخت کننده نشيمن در اتصال تير به ستون ساده - مفصلي | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 3.82 100 % 50 % = 1.91 | | | بعد جوش سخت کننده­ها به ستون | | = 5 | | بعد جوش ورق نشیمن به تیر | | = 0 | | حداقل فاصله آزاد مورد نیاز بعد از جوشکاری | | 5 | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE240 | | عرض بال |  | 12.0 | | ضخامت بال |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات سخت کننده | | | | ارتفاع سخت کننده |  | 9.0 | | عرض سخت کننده |  | 9.0 | | ضخامت سخت کننده |  | 8 | | تعداد سخت کننده ها |  | 1 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG-BOX600\*600\*40 | | عرض ستون |  | 60.0 | | ضخامت ستون |  | 40 | | |  |  |  | | --- | --- | --- | | مشخصات ورق نشیمن | | | | پهنای ورق نشیمن |  | 13.0 | | ضخامت ورق نشیمن |  | 10 | | طول ورق نشیمن |  | 0.0 | | | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | Description: Description: $S3_C1$ | 10 8 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C2$ | 8 6 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C3$ | 60.0 13.0 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C4$ | 10 10 | |  | Description: Description: $Frame$ | | Description: Description: $S3_C5$ | 13.0 13.0 | |  | Description: Description: $Frame$ | |
| |  | | --- | |  | | (بند 10-2-9-10-2) مبحث 10-1392 | | (بند 10-2-9-10-3) مبحث 10-1392 |   م.ازهری و س.ر. میرقادری (1389)، میرقادری طراحی سازه های فولادی-جلد سوم -اتصالات، انتشارات ارکان دانش،ص341 | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل عرض نشیمن برای جلوگیری از تسلیم و لهیدگی جان تحت اثر بارهای متمرکز | | | $level3$ | | | | | | | | تعیین حداقل عرض ورق نشیمن بر مبنای تسلیم موضعی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | | | 1.00 | | | |  | | حداقل عرض نشیمن بر اساس تسلیم موضعی جان | | 2.5 | | |  | | | |  | | کنترل حداقل عرض ورق نشیمن بر مبنای لهیدگی جان | | | $level4$ | | | | | | | | ضریب کاهش مقاومت |  | | 0.75 | | | | | |  | |  | | | | | |  | Description: Description: $Frame$ |  | $S4_C2$ | |  | | | | | |  | Description: Description: $Frame$ | $S4_C3$ | |  |  | | | -12.9 | | | | |  | | حداقل طول نشیمن تیر | 2.5 | | |  | | | | |  | | $S4_C1$ | 9.0 4.0 | | |  | | | | | Description: Description: $Frame$ | |
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| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل کفایت ابعاد ورق(های) سخت کننده (بر اساس روش پلاستیک) | | | $level2$ | | | | | کنترل کمانش موضعی سخت کننده (ها) | | $level4$ | | | | | | Description: Description: $S5_C3$ | 1.00 11.25 21.43 | | | Description: Description: $Frame$ |  | Description: Description: $S5_C2$ | | Description: Description: $S5_C5$ | 2.0 | | | Description: Description: $Frame$ | Description: Description: $S5_C4$ | | Description: Description: $S5_C50$ |  | | | Description: Description: $Frame$ | Description: Description: $S5_C40$ | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت سخت کننده(ها) | | | | |  | | | کنترل مقاومت اتکایی | | | | |  | | | سطح مقطع | | 6.00 | | |  |  | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | مقاومت اتکایی طرح | | 19.44 | | |  |  | | نسبت تنش اتکایی | | 0.10 | | |  |  | | Description: Description: $S6_C1$ | | 0.10 | | |  | *Description: Description: $Frame$* | | کنترل مقاومت تسلیم | | | | | $level4$ | | | فاصله برون محوری بار از بر ستون | | 7.8 | | |  |  | | فاصله برونمحوری بار تا وسط عرض سختکننده ­­ | | | 3.3 | |  |  | |  | | 0.50 | | |  |  | | ضریب کاهش مقاومت | | 0.90 | | | |  | | مقاومت طراحی سختکننده(ها)­­ | 3.97 | | |  | |  | | نسبت مقاومت | | 0.48 | | |  |  | | Description: Description: $S6_C2$ | | 0.48 | | |  | *Description: Description: $Frame$* | |
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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل نسبت تنش در جوش سخت کننده (ها) به بال ستون | | | | $level3$ | | | | محاسبه اندر کنش تنش های جوش در بر ستون | | | | $level4$ | | | | لنگر خمشی نهایی در بر ستون | | 0.15 | | |  |  | | تعداد سخت­کننده (ها) | |  | | | 1 |  | | طول جوش شده ورق نشیمن به بال ستون | | 12.2 | | |  |  | | مدول الاستیک مقطع | 100.20 | |  | | |  | | تنش کششی نهایی ناشی از خمش | | 148.0 | | |  |  | | تنش برشی نهایی ناشی از واکنش تکیه گاهی | | 63.3 | | |  |  | | اندر کنش تنش های نهایی | | 161.0 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش گوشه | | $level4$ | | | | | | ضریب کاهش مقاومت |  | | | | 0.75 |  | | ارزش جوش | 501.2 | |  | | |  | | نسبت تنش جوش | 0.32 | | |  | |  | | Description: Description: $S7_C1$ | 0.32 | | |  | | *Description: Description: $Frame$* | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش گوشه | | $level4$ | | | | | ضخامت سخت کننده |  | | 8 | |  | | ضخامت ستون |  | | 40 | |  | | حداقل بعد جوش |  | | 5 | |  | | حداکثر بعد جوش |  | | 8 | |  | | بعد جوش |  | | 5 | |  | | Description: Description: $S8_C1$ | 5 5 8 | | |  | Description: Description: $Frame$ | |

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| |  |  |  | | --- | --- | --- | |  | | | | گزارش محاسبات : بررسي نبشي جان در اتصال تير به ستون ساده - مفصلي | | | | مشخصات کلی گزارش | | $level2$ | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فلز الکترود |  | 4200.0 | | |  |  | | --- | --- | | نوع طراحی | لرزه اي | | روش طراحی | ضرايب بار و مقاومت (LRFD) | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب بازرسی جوش |  | 0.75 | | |  |  |  | | --- | --- | --- | | واکنش تکیه گاهی | = 3.82 100 % 50 % = 1.91 | | | بعد جوش اتصال نبشی به تیر | | = 3 mm | | بعد جوش اتصال نبشی به ستون | | = 5 mm | | | | |
| |  |  |  |  | | --- | --- | --- | --- | | المان های درگیر در اتصال | | $level2$ | | | | مشخصات تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE240 | | عرض بال |  | 12.0 | | ضخامت بال |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات نبشی | | | | نام نبشی |  | 60x60x6 | | طول نبشی |  | 10.0 | | بعد اول بال نبشی |  | 6.0 | | بعد دوم بال نبشی |  | 6.0 | | ضخامت نبشی |  | 6 | | تعداد |  | 2 | | | Description: Description: $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG-BOX600\*600\*40 | | عرض ستون |  | 60.0 | | ضخامت ستون |  | 40 | |  | | | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل هندسی اجزاء اتصال | | $level3$ | | | | کنترل بیرون زدگی ارتفاع نبشی از ارتفاع موثر تیر |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: $S3_C1$ | 10.0 18.0 |  | Description: Description: $Frame$ |  |  |  |  |  | | --- | --- | --- | --- | | کنترل بیرون زدگی عرض نبشی از ستون |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | | Description: Description: Description: Description: Description: $S3_C2$ | 6.0 29.2 |  | Description: Description: Description: Description: Description: $Frame$ | |
| (بند 10-2-9-4-2 (الف)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل مقاومت برشی نبشی | | $level3$ | | | | | نیروی برشی نهایی وارد بر نبشی | 0.96 | | |  |  | | ضریب کاهش مقاومت |  | | | 1.00 |  | | مقاومت برشی طراحی | 8.64 | |  | |  | |  | 0.22 | | |  |  | | Description: Description: $S4_C3$ | 0.22 | | |  | Description: Description: $Frame$ | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش اتصال نبشی به تیر | | | $level3$ | | | | محاسبه اندرکنش تنش های جوش | | | $level4$ | | | | ارتفاع جوش |  | | | 10.0 |  | | عرض جوش | 4.5 | | |  |  | | سطح مقطع جوش در واحد طول | 38.0 | | |  |  | | فاصله مرکز سطح جوش از خط قائم آن | 1.1 | | |  |  | | برون محوری پیچی | 4.9 | | |  |  | | ممان اینرسی قطبی | 347.50 | | |  |  | | لنگر پیچشی نهایی | 0.05 | | |  |  | | تنش برشی نهایی جوش در جهت قائم | 50.3 | | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت قائم | | 46.6 | |  |  | | تنش برشی نهایی ناشی از پیچش در جهت افقی | | 67.9 | |  |  | | اندر کنش تنش های نهایی | 118.3 | | |  |  | |
| (بند 10-2-9-2-4) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوش | | | $level4$ | | | | | ضریب کاهش مقاومت | |  | | | 0.75 |  | | ارزش جوش | 300.7 | | |  | |  | | نسبت تنش جوش | | 0.39 | | |  |  | | Description: Description: $S5_C1$ | | 0.39 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب))مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت تیر در محل اتصال نبشی |  | | 6 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 3 | |  | | Description: Description: $S5_C2$ | 3 3 6 | | |  | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل مقاومت برشی وارد بر جوش B-جوش اتصال نبشی به ستون | | $level3$ | | | | محاسبه اندرکنش تنش های جوش B(بر اساس رابطه بلاجت) | | $level4$ | | | | سطح مقطع جوش در واحد طول | 20.0 | |  |  | | تنش برشی نهایی جوش در جهت قائم | 95.6 | |  |  | | لنگر پیچشی نهایی وارد بر جوش | 0.06 | |  |  | | بیشینه تنش کششی نهایی ناشی از پیچش در جهت افقی | 217.1 | |  |  | | اندر کنش تنش های نهایی | 237.2 | |  |  | |
| (بند 10-2-9-2- (ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه ارزش جوشB | | $level4$ | | | | | ضریب کاهش مقاومت |  | | | 0.75 |  | | ارزش جوش | 501.2 | |  | |  | | نسبت تنش جوش | 0.47 | | |  |  | | Description: Description: $S6_C1$ | 0.47 | | |  | $Frame$ | |
| (بند 10-2-9-2-2(ب)) مبحث 10-1392 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل بعد جوش B | | $level4$ | | | | | ضخامت نبشی |  | | 6 | |  | | ضخامت ستون در محل اتصال نبشی |  | | 40 | |  | | حداقل بعد جوش |  | | 3 | |  | | حداکثر بعد جوش |  | | 6 | |  | | بعد جوش |  | | 5 | |  | | Description: Description: $S6_C2$ | 3 5 6 | | |  | $Frame$ | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |



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| محتویات این بخش: | گزارش اتصالات صفحه ستون |

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|  |  | |  | | --- | | BasePlate | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | مشخصات اتصال | | | $level2$ | | | نام اتصال: | BasePlate | | | | | مشخصات هندسی | | | $level3$ | | | | مشخصات صفحه ستون | | | | --- | --- | --- | | عرض ورق |  | 90.0 | | ارتفاع ورق |  | 90.0 | | ضخامت |  | 30 | | | |  |  |  | | --- | --- | --- | | مشخصات ستون | | | | مقطع ستون |  | PG-BOX600\*600\*40 | | عرض ستون |  | 60.0 | | ارتفاع ستون |  | 60.0 | | خروج از مرکزیت3 |  | 0.0 | | خروج از مرکزیت 2 |  | 0.0 | | | $Frame1$ | | |  |  |  | | --- | --- | --- | | مشخصات سخت کننده ها | | | | ارتفاع کوچکتر |  | 15.0 | | ارتفاع بزرگتر |  | 30.0 | | ارتفاع تسمه های کناری |  | 15.0 | | فاصله تسمه های کناری |  | 1.0 | | ضخامت |  | 15 | | | |  |  |  | | --- | --- | --- | | مشخصات میل مهارها | | | | قطر |  | 28 | | تعداد در راستای 2 |  | 4 | | تعداد در راستای 3 |  | 4 | | فاصله از ضلع عمودی |  | 7.5 | | فاصله از ضلع افقی |  | 7.5 | | تعداد کل |  | 12 | | | |
| |  |  |  | | --- | --- | --- | | مشخصات مصالح و بیشینه نیروها | | $level3$ | | | مقاومت مشخصه بتن |  | 240.0 | | --- | --- | --- | | مدول الاستیسیته بتن |  | 233928.2 | | مدول الاستیسیته فولاد |  | 2040000.0 | | نسبت مدول الاستیسیته فولاد به بتن |  | 8.7206 | | تنش نهایی میل مهار ها ها |  | 6000.0 | | تنش تسلیم فولاد |  | 2400.0 | | |  |  |  |  | | --- | --- | --- | --- | | بیشینه نیروی فشاری ستون |  | UDStlS9 | 377.89 | | بیشینه نیروی کششی میل مهار بحرانی |  | EXN | 942913.52 | | بیشینه نیروی برشی ستون |  | UDStlS15 | 11.62 | | بیشینه تنش قائم زیر صفحه ستون |  | EYN | 132.6 | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-8(پ)) مبحث 10-1392 | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل ابعاد صفحه ستون | | $level3$ | | | | | |  |  | | | 240.0 | |  | | مساحت صفحه ستون |  | | | 8100.00 | |  | |  |  | | | 1.0000 | |  | | ظرفیت صفحه ستون متناظر با خروج از محوری ترکیب بار حاکم | | | | 3.99 | |  | | ضریب کاهش مقاومت | | | | 0.65 | |  | | 3.99 | | |  | | |  | | $S3_C1$ | 2.64 3.99 | | | |  | *$Frame$* | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل مقاومت کلی پیچ ها در حالت شکست کششی | | $level3$ | | | | نیروی محوری ترکیب بار بحرانی شکست کششی |  | | -123.69 |  | | مقاومت محوری متناظر با خروج از محوری ترکیب بار |  | | -122.26 |  | |  | 1.01 | |  |  | *$Frame$* | | $S3_C1$ | 1.01 | |  | *$Frame$* | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-3) مبحث 10-1392 | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل مقاومت برشی پیچ | | $level4$ | | | | تعداد کل پیچ ها |  | | 12 |  | | بیشینه نیروی نهایی روی سطح برش پیچ | 0.97 | |  |  | | قطر پیچ ها |  | | 28 |  | | مساحت هر یک از پیچ ها |  | | 6.16 |  | | پيچ ها تحت اثر توام کشش و برش نمي باشند | | | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  | | --- | --- | --- | --- | | سطح برش از قسمت دندانه شده نمي گذرد | جدول(10-2-9-10) | 3300.0 |  | | ضریب کاهش مقاومت |  | 0.75 |  | | 15.24 | |  |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  | | --- | --- | --- | --- | |  | 0.06 |  |  | | $ResultPic$ | 0.06 |  | ّ$Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (بند10-2-9-3-3) مبحث 10-1392 | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل مقاومت کششی پیچ | | $level4$ | | | | بیشینه نیروی کششی در پیچ بحرانی |  | | 942913.52 |  | | تعداد پیچ های تحت کشش |  | | = 12 |  | | قطر پیچ ها |  | | 28 |  | | مساحت هر یک از پیچ ها |  | | 6.16 |  | | پيچ ها تحت اثر توام کشش و برش نمي باشند | | | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | سطح برش از قسمت دندانه شده نمي گذرد | جدول(10-2-9-10) | |  |  | |  |  | | 4500.0 |  | | ضریب کاهش مقاومت |  | | 0.75 |  | | 20.78 | |  | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  | | --- | --- | --- | --- | |  | 45372.44 |  |  | | $ResultPic$ | 45372.44 |  | ّ$Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | کنترل ابعاد سخت کننده ها | $level3$ | | خلاصه اطلاعات سخت کننده ها | $level4$ | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | طول صفحه ستون | | | 90.0 | *BasePlatePic.bmp* | | | عرض صفحه ستون | | | 90.0 | | ضخامت صفحه ستون | | | 30 | | عرض مقطع ستون | | | 60.0 | | طول مقطع ستون | | | 60.0 | | ارتفاع سخت کننده های موثر | | | 30.0 | | ضخامت سخت کننده ها | | | 15 | | تنش بیشینه زیر صفحه ستون | | | 132.6 | | تنش نهایی الکترود | | | 4200.0 | | ضریب بازرسی جوش | | | 0.75 | | ضریب تقلیل مقاومت خمش | |  |  | | ضریب تقلیل مقاومت برش | |  |  | | ضریب تقلیل مقاومت جوش | |  |  | |  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  | *(ton.m)* |  |  | | راستای بال (+3) | 3 | 4 | 6 | 149.18 | 10.44 | 25 | 10 | | راستای بال(-3) | 3 | 4 | 6 | 149.18 | 10.44 | 25 | 10 | | راستای جان(-2) | 3 | 6 | 6 | 149.18 | 10.44 | 17 | 10 | | راستای جان (+2) | 3 | 6 | 6 | 149.18 | 10.44 | 17 | 10 | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت سخت کننده ها و جوش آن در راستاي بال +3 | | | | | | | | | | | | | | | | $level4$ | | | | | | | عرض ستون(قاعده کوچکتر ذوزنقه تحت فشار) | | | | | | |  | | | | | | | 60.0 | | | | | | |  | | عرض صفحه ستون(قاعده بزرگتر ذوزنقه تحت فشار) | | | | | | |  | | | | | | | 90.0 | | | | | | |  | | ارتفاع ذوزنقه تحت فشار | | | | | | |  | | | | | | | 15.0 | | | | | | |  | | محل تار خنثی از زیر صفحه ستون | | |  | | | | | 3.0 | | | | | | | | | | | | |  | |  | | | | | | | | | | | | | | | | | | |  |  | *$S1_C6$* | |  | | | | | | | | | | | | | | | | | | |  | *$S1_C7$* | | اساس مقطع پلاستیک سیستم سخت کننده | | | | | | |  | | | | | 2295.00 | | | | | | | | |  | |  | | | 149.18 | | | | | | | | |  | | | | | | | | |  | | فاصله مرکز سطح ذوزنقه از ضلع کوچکتر | | | | | | 7.0 | | | | | |  | | | | | | | | |  | |  | | | | | 10.44 | | | | | | |  | | | | | | | | |  | |  | | | | | 49.57 | | | | | | |  | | | | | | | | |  | | $S8_C1$ | | | | | 0.21 | | | | | | |  | | | | | | | | | *$Frame$* | |  | | | | | 192.46 | | | | | | |  | | | | | | | | |  | | $S8_C2$ | | | | | 0.78 | | | | | | |  | | | | | | | | | *$Frame$* | |  | | | | |  | | | | | | | | | | | | | | | |  | | محل تار خنثی جوش از زیر صفحه ستون که الاستیک فرض می­شود | | | | | | | | | = 8.6 | | | | | | | | |  | | |  | |  | | | | | | | | | | | | | | | | | | | | |  | | اساس مقطع الاستیک سیستم سخت کننده | | | | 31262.14 | | | | | | | | | | | | |  | | | |  | | 1272.86 | | | | | | | | | | |  | | | | | | | | | |  | |  | | 1012.3 | | | | | | | | | | |  | | | | | | | |  | |  | | 10 | | | | | | | | |  | | | | | | | | | |  | |  | | 1740.4 | | | | | | | | | | | |  | | | | | | |  | |  | | 1864.7 | | | | | | | | | | | |  | | | | | | |  | |  | 25506.8 | | | | | | | | |  | | | | | | | | | | |  | |  | = 25 | | | | | | | | |  | | | | | | | | | | |  | |  | | | | 25 | | | | | | | | | | |  | | | | | |  | | $S8_C3$ | | | | 13 | | | | | | | | | | |  | | | | | | *$Frame$* | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت سخت کننده ها و جوش آن در راستاي بال +3 | | | | | | | | | | | | | | | | $level4$ | | | | | | | عرض ستون(قاعده کوچکتر ذوزنقه تحت فشار) | | | | | | |  | | | | | | | 60.0 | | | | | | |  | | عرض صفحه ستون(قاعده بزرگتر ذوزنقه تحت فشار) | | | | | | |  | | | | | | | 90.0 | | | | | | |  | | ارتفاع ذوزنقه تحت فشار | | | | | | |  | | | | | | | 15.0 | | | | | | |  | | محل تار خنثی از زیر صفحه ستون | | |  | | | | | 3.0 | | | | | | | | | | | | |  | |  | | | | | | | | | | | | | | | | | | |  |  | *$S1_C6$* | |  | | | | | | | | | | | | | | | | | | |  | *$S1_C7$* | | اساس مقطع پلاستیک سیستم سخت کننده | | | | | | |  | | | | | 2295.00 | | | | | | | | |  | |  | | | 149.18 | | | | | | | | |  | | | | | | | | |  | | فاصله مرکز سطح ذوزنقه از ضلع کوچکتر | | | | | | 7.0 | | | | | |  | | | | | | | | |  | |  | | | | | 10.44 | | | | | | |  | | | | | | | | |  | |  | | | | | 49.57 | | | | | | |  | | | | | | | | |  | | $S8_C1$ | | | | | 0.21 | | | | | | |  | | | | | | | | | *$Frame$* | |  | | | | | 192.46 | | | | | | |  | | | | | | | | |  | | $S8_C2$ | | | | | 0.78 | | | | | | |  | | | | | | | | | *$Frame$* | |  | | | | |  | | | | | | | | | | | | | | | |  | | محل تار خنثی جوش از زیر صفحه ستون که الاستیک فرض می­شود | | | | | | | | | = 8.6 | | | | | | | | |  | | |  | |  | | | | | | | | | | | | | | | | | | | | |  | | اساس مقطع الاستیک سیستم سخت کننده | | | | 31262.14 | | | | | | | | | | | | |  | | | |  | | 1272.86 | | | | | | | | | | |  | | | | | | | | | |  | |  | | 1012.3 | | | | | | | | | | |  | | | | | | | |  | |  | | 10 | | | | | | | | |  | | | | | | | | | |  | |  | | 1740.4 | | | | | | | | | | | |  | | | | | | |  | |  | | 1864.7 | | | | | | | | | | | |  | | | | | | |  | |  | 25506.8 | | | | | | | | |  | | | | | | | | | | |  | |  | = 25 | | | | | | | | |  | | | | | | | | | | |  | |  | | | | 25 | | | | | | | | | | |  | | | | | |  | | $S8_C3$ | | | | 13 | | | | | | | | | | |  | | | | | | *$Frame$* | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل مقاومت سخت کننده ها و جوش آن در راستاي جان +2 | | | | | | | | | | | | | | | | $level4$ | | | | | | | عرض ستون(قاعده کوچکتر ذوزنقه تحت فشار) | | | | | | |  | | | | | | | 60.0 | | | | | | |  | | عرض صفحه ستون(قاعده بزرگتر ذوزنقه تحت فشار) | | | | | | |  | | | | | | | 90.0 | | | | | | |  | | ارتفاع ذوزنقه تحت فشار | | | | | | |  | | | | | | | 15.0 | | | | | | |  | | محل تار خنثی از زیر صفحه ستون | | |  | | | | | 4.7 | | | | | | | | | | | | |  | |  | | | | | | | | | | | | | | | | | | |  |  | *$S1_C6$* | |  | | | | | | | | | | | | | | | | | | |  | *$S1_C7$* | | اساس مقطع پلاستیک سیستم سخت کننده | | | | | | |  | | | | | 2382.50 | | | | | | | | |  | |  | | | 149.18 | | | | | | | | |  | | | | | | | | |  | | فاصله مرکز سطح ذوزنقه از ضلع کوچکتر | | | | | | 7.0 | | | | | |  | | | | | | | | |  | |  | | | | | 10.44 | | | | | | |  | | | | | | | | |  | |  | | | | | 51.46 | | | | | | |  | | | | | | | | |  | | $S8_C1$ | | | | | 0.20 | | | | | | |  | | | | | | | | | *$Frame$* | |  | | | | | 192.46 | | | | | | |  | | | | | | | | |  | | $S8_C2$ | | | | | 0.78 | | | | | | |  | | | | | | | | | *$Frame$* | |  | | | | |  | | | | | | | | | | | | | | | |  | | محل تار خنثی جوش از زیر صفحه ستون که الاستیک فرض می­شود | | | | | | | | | = 8.6 | | | | | | | | |  | | |  | |  | | | | | | | | | | | | | | | | | | | | |  | | اساس مقطع الاستیک سیستم سخت کننده | | | | 31262.14 | | | | | | | | | | | | |  | | | |  | | 1272.86 | | | | | | | | | | |  | | | | | | | | | |  | |  | | 1012.3 | | | | | | | | | | |  | | | | | | | |  | |  | | 10 | | | | | | | | |  | | | | | | | | | |  | |  | | 1160.3 | | | | | | | | | | | |  | | | | | | |  | |  | | 1243.1 | | | | | | | | | | | |  | | | | | | |  | |  | 17004.5 | | | | | | | | |  | | | | | | | | | | |  | |  | = 17 | | | | | | | | |  | | | | | | | | | | |  | |  | | | | 17 | | | | | | | | | | |  | | | | | |  | | $S8_C3$ | | | | 13 | | | | | | | | | | |  | | | | | | *$Frame$* | |

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| |  |  | | --- | --- | | کنترل ضخامت صفحه ستون | $level3$ | | محاسبه ضخامت چشمه بحرانی | $level4$ | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | | چشمه بحرانی*:* | ( 6 ) | | *$S11_C1$* | |  | نوع چشمه: | | چهار طرف بسته | | |  | 77.4 | |  |  | |  | |  |  | | | | |

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|  | |  |  |  |  | | --- | --- | --- | --- | |  |  | 25.3 |  | |  |  | 25.3 |  | |  |  | 1.0000 |  | |  |  | 0.0480 |  | |  | 236.77 |  |  | |

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| |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ریز اطلاعات چشمه ها | | | |  |  |  |  |  |  |  |  | | ضخامت  (mm) | M  (Kg.cm) | Alpha | عرض  (cm) | طول  (cm) | S4  (Kg/cm2) | S3  (Kg/cm2) | S2  (Kg/cm2) | S1  (Kg/cm2) | نوع | بار | چشمه | | 14 | 105.89 | 0.0660 | 11.0 | 13.8 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | EYN | 1 | | 19 | 200.56 | 0.1250 | 11.0 | 26.5 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | EYN | 2 | | 19 | 200.56 | 0.1250 | 11.0 | 26.5 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | EYN | 3 | | 14 | 105.89 | 0.0660 | 11.0 | 13.8 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | EYN | 4 | | 17 | 151.11 | 0.1250 | 25.3 | 12.5 | 77.4 | 77.4 | 77.4 | 77.4 | چهار طرف بسته | UDStlS26 | 5 | | **21** | **236.77** | **0.0480** | **25.3** | **25.3** | **77.4** | **77.4** | **77.4** | **77.4** | **چهار طرف بسته** | **UDStlS26** | **6** | | 21 | 236.77 | 0.0480 | 25.3 | 25.3 | 77.4 | 77.4 | 77.4 | 77.4 | چهار طرف بسته | UDStlS26 | 7 | | 17 | 151.11 | 0.1250 | 25.3 | 12.5 | 77.4 | 77.4 | 77.4 | 77.4 | چهار طرف بسته | UDStlS26 | 8 | | 17 | 153.86 | 0.1250 | 25.3 | 12.5 | 78.8 | 78.8 | 78.8 | 78.8 | چهار طرف بسته | UDStlS15 | 9 | | 21 | 241.08 | 0.0480 | 25.3 | 25.3 | 78.8 | 78.8 | 78.8 | 78.8 | چهار طرف بسته | UDStlS15 | 10 | | 21 | 241.08 | 0.0480 | 25.3 | 25.3 | 78.8 | 78.8 | 78.8 | 78.8 | چهار طرف بسته | UDStlS15 | 11 | | 17 | 153.86 | 0.1250 | 25.3 | 12.5 | 78.8 | 78.8 | 78.8 | 78.8 | چهار طرف بسته | UDStlS15 | 12 | | 14 | 105.89 | 0.0660 | 11.0 | 13.8 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | EX | 13 | | 19 | 200.56 | 0.1250 | 11.0 | 26.5 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | EX | 14 | | 19 | 200.56 | 0.1250 | 11.0 | 26.5 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | UDStlS7 | 15 | | 14 | 105.89 | 0.0660 | 11.0 | 13.8 | 132.6 | 132.6 | 132.6 | 132.6 | چهار طرف بسته | UDStlS7 | 16 |   توجه: منظور از S1 , S2 , S3 , S4 تنش چهارگوشه هر یک از چشمه هاست. |

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| |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ریز نیروها | |  | |  |  |  |  |  |  |  |  |  | |  | نوع شکست | | نسبت در پیچ های بحرانی | |  |  |  |  |  |  |  | بار | |  | کششی | برشی |  |  |  |  |  |  | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.01 | 0.00 | 0.00 | 0.34 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.05 | 0.00 | 0.00 | 1.65 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.9 | 0.00 | -0.18 | 0.11 | 0.03 | 23.38 | EXTERIOR WALL | | 16.85 | کششي | | 0.81 | 0.04 | 0.69 | 132.6 | 0.00 | 56.91 | -7.67 | -1.08 | -34.21 | EYN | | 16.91 | کششي | | 0.81 | 0.04 | 0.67 | 132.6 | 0.00 | 55.52 | -7.37 | 0.26 | -33.47 | EYP | | 1.29 | فشاري | | 0.06 | 0.01 | 0.01 | 132.6 | 0.00 | -0.69 | 0.15 | 2.28 | 0.67 | EXN | | 1.33 | فشاري | | 0.06 | 0.01 | 0.00 | 132.6 | 0.00 | 0.20 | -0.05 | 1.43 | 0.20 | EXP | | 16.87 | کششي | | 0.81 | 0.04 | 0.68 | 132.6 | 0.00 | 56.22 | -7.52 | -0.41 | -33.84 | EY | | 1.16 | فشاري | | 0.06 | 0.01 | 0.00 | 132.6 | 0.00 | -0.25 | 0.05 | 1.85 | 0.44 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.4 | 0.00 | 0.09 | 0.00 | 0.00 | 2.84 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.8 | 0.00 | 0.21 | 0.00 | 0.01 | 22.39 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.1 | 0.00 | 0.21 | 0.04 | -1.40 | 33.43 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.4 | 0.00 | 0.61 | -0.06 | 1.45 | 33.83 | UDStlS8 | | 7.61 | کششي | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | -55.80 | 7.51 | 0.43 | 67.47 | UDStlS7 | | 13.14 | کششي | | 0.63 | 0.04 | 0.58 | 132.6 | 0.00 | 56.63 | -7.53 | -0.39 | -0.21 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.3 | 0.00 | 0.66 | -0.06 | -1.83 | 33.19 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.2 | 0.00 | 0.17 | 0.04 | 1.87 | 34.06 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 4.0 | 0.00 | 0.39 | -0.01 | 0.02 | 31.56 | UDStlS3 | | 9.35 | فشاري | | 0.45 | 0.04 | 0.45 | 132.6 | 0.00 | -56.75 | 7.66 | 1.09 | 52.12 | UDStlS27 | | 14.95 | کششي | | 0.72 | 0.04 | 0.63 | 132.6 | 0.00 | 57.08 | -7.67 | -1.06 | -16.30 | UDStlS26 | | 9.39 | فشاري | | 0.45 | 0.04 | 0.45 | 132.6 | 0.00 | -55.35 | 7.36 | -0.25 | 51.38 | UDStlS25 | | 14.98 | کششي | | 0.72 | 0.04 | 0.61 | 132.6 | 0.00 | 55.68 | -7.37 | 0.27 | -15.55 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.4 | 0.00 | 0.86 | -0.15 | -2.27 | 17.24 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.4 | 0.00 | -0.53 | 0.14 | 2.29 | 18.59 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.2 | 0.00 | -0.04 | 0.05 | -1.41 | 17.71 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.3 | 0.00 | 0.37 | -0.05 | 1.44 | 18.11 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 4.3 | 0.00 | 0.48 | -0.01 | 0.03 | 34.12 | UDStlS2 | | 9.37 | فشاري | | 0.45 | 0.04 | 0.45 | 132.6 | 0.00 | -56.05 | 7.51 | 0.42 | 51.75 | UDStlS19 | | 14.95 | کششي | | 0.72 | 0.04 | 0.62 | 132.6 | 0.00 | 56.38 | -7.52 | -0.40 | -15.93 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.3 | 0.00 | 0.41 | -0.05 | -1.84 | 17.48 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.3 | 0.00 | -0.08 | 0.05 | 1.86 | 18.35 | UDStlS16 | | 7.58 | فشاري | | 0.36 | 0.04 | 0.43 | 132.6 | 0.00 | -56.50 | 7.66 | 1.10 | 67.84 | UDStlS15 | | 14.87 | کششي | | 0.72 | 0.04 | 0.59 | 132.6 | 0.00 | 57.33 | -7.68 | -1.05 | -0.58 | UDStlS14 | | 7.61 | کششي | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | -55.11 | 7.36 | -0.23 | 67.09 | UDStlS13 | | 13.18 | کششي | | 0.63 | 0.04 | 0.56 | 132.6 | 0.00 | 55.93 | -7.38 | 0.28 | 0.16 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.4 | 0.00 | 1.10 | -0.16 | -2.25 | 32.95 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.2 | 0.00 | -0.28 | 0.13 | 2.30 | 34.30 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 4.0 | 0.00 | 0.29 | 0.00 | 0.02 | 31.35 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.4 | 0.00 | 0.35 | -0.01 | 0.02 | 26.89 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.8 | 0.00 | 0.21 | 0.00 | 0.01 | 22.39 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.9 | 0.00 | 0.21 | 0.00 | 0.01 | 22.73 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.8 | 0.00 | 0.21 | 0.00 | 0.01 | 22.51 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.79 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.4 | 0.00 | 0.03 | 0.00 | -0.01 | 3.64 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.0 | 0.00 | -0.05 | -0.01 | 0.01 | 16.24 | EXTERIOR WALL | | 15.22 | کششي | | 0.73 | 0.04 | 0.62 | 132.6 | 0.00 | 51.33 | -6.32 | -1.08 | -29.80 | EYN | | 16.81 | کششي | | 0.81 | 0.04 | 0.69 | 132.6 | 0.00 | 57.57 | -7.95 | 0.26 | -32.06 | EYP | | 0.97 | کششي | | 0.05 | 0.01 | 0.03 | 132.6 | 0.00 | 2.48 | -0.76 | 2.30 | -0.73 | EXN | | 0.97 | فشاري | | 0.05 | 0.01 | 0.01 | 132.6 | 0.00 | -1.53 | 0.29 | 1.45 | 0.70 | EXP | | 16.97 | کششي | | 0.82 | 0.04 | 0.64 | 132.6 | 0.00 | 54.45 | -7.14 | -0.41 | -30.93 | EY | | 24.63 | کششي | | 1.19 | 0.01 | 0.00 | 132.6 | 0.00 | 0.47 | -0.24 | 1.88 | -0.01 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.8 | 0.00 | 0.05 | 0.01 | -0.01 | 6.27 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.6 | 0.00 | 0.12 | 0.02 | -0.02 | 29.45 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.4 | 0.00 | 1.77 | -0.25 | -1.49 | 47.51 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.4 | 0.00 | -1.30 | 0.32 | 1.41 | 48.92 | UDStlS8 | | 5.89 | کششي | | 0.28 | 0.04 | 0.38 | 132.6 | 0.00 | -54.22 | 7.17 | 0.37 | 79.15 | UDStlS7 | | 11.27 | کششي | | 0.54 | 0.04 | 0.51 | 132.6 | 0.00 | 54.68 | -7.10 | -0.45 | 17.28 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.0 | 0.00 | -0.24 | 0.27 | -1.92 | 48.23 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.2 | 0.00 | 0.71 | -0.20 | 1.83 | 48.20 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.6 | 0.00 | 0.22 | 0.03 | -0.04 | 45.46 | UDStlS3 | | 7.75 | فشاري | | 0.37 | 0.04 | 0.40 | 132.6 | 0.00 | -51.23 | 6.34 | 1.06 | 53.36 | UDStlS27 | | 13.29 | کششي | | 0.64 | 0.04 | 0.54 | 132.6 | 0.00 | 51.43 | -6.31 | -1.09 | -6.24 | UDStlS26 | | 9.33 | فشاري | | 0.45 | 0.04 | 0.47 | 132.6 | 0.00 | -57.47 | 7.97 | -0.27 | 55.62 | UDStlS25 | | 14.88 | کششي | | 0.72 | 0.04 | 0.62 | 132.6 | 0.00 | 57.67 | -7.93 | 0.24 | -8.51 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.8 | 0.00 | -2.38 | 0.78 | -2.32 | 24.29 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.8 | 0.00 | 2.58 | -0.75 | 2.29 | 22.83 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.4 | 0.00 | 1.63 | -0.27 | -1.47 | 22.85 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.4 | 0.00 | -1.44 | 0.30 | 1.43 | 24.26 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.3 | 0.00 | 0.27 | 0.04 | -0.05 | 51.26 | UDStlS2 | | 7.67 | فشاري | | 0.37 | 0.04 | 0.42 | 132.6 | 0.00 | -54.35 | 7.15 | 0.39 | 54.49 | UDStlS19 | | 14.98 | کششي | | 0.72 | 0.04 | 0.58 | 132.6 | 0.00 | 54.55 | -7.12 | -0.43 | -7.37 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.9 | 0.00 | -0.37 | 0.25 | -1.89 | 23.57 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 3.1 | 0.00 | 0.57 | -0.22 | 1.86 | 23.54 | UDStlS16 | | 4.23 | کششي | | 0.20 | 0.04 | 0.35 | 132.6 | 0.00 | -51.09 | 6.36 | 1.04 | 78.02 | UDStlS15 | | 11.39 | کششي | | 0.55 | 0.03 | 0.48 | 132.6 | 0.00 | 51.56 | -6.29 | -1.12 | 18.42 | UDStlS14 | | 5.84 | فشاري | | 0.28 | 0.04 | 0.41 | 132.6 | 0.00 | -57.34 | 7.99 | -0.30 | 80.28 | UDStlS13 | | 12.98 | فشاري | | 0.62 | 0.04 | 0.54 | 132.6 | 0.00 | 57.80 | -7.92 | 0.22 | 16.15 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.7 | 0.00 | -2.25 | 0.80 | -2.34 | 48.95 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.7 | 0.00 | 2.71 | -0.73 | 2.26 | 47.49 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.1 | 0.00 | 0.17 | 0.03 | -0.03 | 41.22 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.9 | 0.00 | 0.20 | 0.03 | -0.03 | 39.36 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.6 | 0.00 | 0.12 | 0.02 | -0.02 | 29.45 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.7 | 0.00 | 0.13 | 0.02 | -0.02 | 30.23 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.7 | 0.00 | 0.12 | 0.02 | -0.02 | 29.58 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.76 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.4 | 0.00 | -0.06 | 0.09 | -0.02 | 3.50 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.3 | 0.00 | -0.30 | 0.34 | -0.03 | 18.73 | EXTERIOR WALL | | 11.62 | کششي | | 0.56 | 0.03 | 0.49 | 132.6 | 0.00 | 46.09 | -4.81 | -1.08 | -8.05 | EYN | | 14.84 | کششي | | 0.71 | 0.04 | 0.63 | 132.6 | 0.00 | 59.06 | -8.07 | 0.26 | -9.47 | EYP | | 0.96 | کششي | | 0.05 | 0.02 | 0.06 | 132.6 | 0.00 | 5.28 | -1.54 | 2.30 | -0.53 | EXN | | 1.01 | فشاري | | 0.05 | 0.01 | 0.03 | 0.0 | 0.00 | -3.06 | 0.56 | 1.45 | 0.36 | EXP | | 13.24 | کششي | | 0.64 | 0.04 | 0.57 | 132.6 | 0.00 | 52.57 | -6.44 | -0.41 | -8.76 | EY | | 1.02 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | 1.11 | -0.49 | 1.87 | -0.09 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.7 | 0.00 | -0.11 | 0.15 | -0.04 | 6.03 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.5 | 0.00 | -0.23 | 0.37 | -0.09 | 28.39 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.5 | 0.00 | 2.60 | 0.16 | -1.63 | 46.11 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.9 | 0.00 | -3.52 | 1.29 | 1.26 | 46.83 | UDStlS8 | | 7.69 | فشاري | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | -53.04 | 7.17 | 0.22 | 55.23 | UDStlS7 | | 9.53 | فشاري | | 0.46 | 0.03 | 0.44 | 132.6 | 0.00 | 52.11 | -5.71 | -0.60 | 37.71 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.2 | 0.00 | -1.57 | 1.22 | -2.06 | 46.55 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 5.9 | 0.00 | 0.64 | 0.24 | 1.68 | 46.38 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.4 | 0.00 | -0.44 | 0.69 | -0.18 | 43.81 | UDStlS3 | | 7.89 | فشاري | | 0.38 | 0.03 | 0.38 | 132.6 | 0.00 | -46.27 | 5.11 | 1.00 | 30.77 | UDStlS27 | | 9.75 | کششي | | 0.47 | 0.03 | 0.43 | 132.6 | 0.00 | 45.91 | -4.51 | -1.15 | 14.66 | UDStlS26 | | 11.08 | فشاري | | 0.53 | 0.05 | 0.52 | 132.6 | 0.00 | -59.24 | 8.37 | -0.33 | 32.18 | UDStlS25 | | 12.93 | فشاري | | 0.62 | 0.04 | 0.57 | 132.6 | 0.00 | 58.88 | -7.77 | 0.18 | 13.25 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.02 | 0.04 | 6.0 | 0.00 | -5.46 | 1.84 | -2.37 | 23.25 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.6 | 0.00 | 5.09 | -1.24 | 2.22 | 22.18 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.9 | 0.00 | 2.88 | -0.27 | -1.52 | 22.35 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.1 | 0.00 | -3.24 | 0.86 | 1.37 | 23.08 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.1 | 0.00 | -0.54 | 0.84 | -0.22 | 49.39 | UDStlS2 | | 9.51 | فشاري | | 0.46 | 0.04 | 0.45 | 132.6 | 0.00 | -52.75 | 6.74 | 0.33 | 31.48 | UDStlS19 | | 11.36 | کششي | | 0.55 | 0.03 | 0.50 | 132.6 | 0.00 | 52.39 | -6.14 | -0.49 | 13.95 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 3.2 | 0.00 | -1.29 | 0.79 | -1.95 | 22.80 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 3.1 | 0.00 | 0.93 | -0.19 | 1.80 | 22.63 | UDStlS16 | | 6.07 | فشاري | | 0.29 | 0.03 | 0.35 | 132.6 | 0.00 | -46.55 | 5.54 | 0.89 | 54.52 | UDStlS15 | | 7.89 | فشاري | | 0.38 | 0.02 | 0.38 | 132.6 | 0.00 | 45.63 | -4.08 | -1.27 | 38.42 | UDStlS14 | | 9.26 | فشاري | | 0.45 | 0.05 | 0.49 | 132.6 | 0.00 | -59.52 | 8.80 | -0.45 | 55.94 | UDStlS13 | | 11.09 | کششي | | 0.53 | 0.04 | 0.50 | 132.6 | 0.00 | 58.59 | -7.34 | 0.07 | 37.00 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.02 | 0.06 | 8.0 | 0.00 | -5.74 | 2.27 | -2.49 | 47.00 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 7.4 | 0.00 | 4.81 | -0.81 | 2.11 | 45.93 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.9 | 0.00 | -0.32 | 0.52 | -0.13 | 39.75 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.7 | 0.00 | -0.40 | 0.62 | -0.16 | 37.92 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.5 | 0.00 | -0.23 | 0.37 | -0.09 | 28.39 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.6 | 0.00 | -0.21 | 0.37 | -0.10 | 29.15 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.5 | 0.00 | -0.22 | 0.37 | -0.09 | 28.52 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.01 | 0.00 | 0.00 | 1.31 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.8 | 0.00 | 0.08 | -0.08 | -0.03 | 6.04 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.4 | 0.00 | 0.11 | -0.16 | 0.00 | 19.14 | EXTERIOR WALL | | 11.61 | کششي | | 0.56 | 0.03 | 0.48 | 132.6 | 0.00 | 46.34 | -5.11 | 0.18 | -3.56 | EYN | | 14.78 | کششي | | 0.71 | 0.05 | 0.62 | 132.6 | 0.00 | 59.37 | -8.44 | -0.07 | -4.53 | EYP | | 0.96 | کششي | | 0.05 | 0.01 | 0.05 | 132.6 | 0.00 | 5.27 | -1.54 | 1.81 | 1.63 | EXN | | 0.97 | فشاري | | 0.05 | 0.01 | 0.03 | 132.6 | 0.00 | -3.10 | 0.62 | 1.97 | 2.25 | EXP | | 13.23 | کششي | | 0.64 | 0.04 | 0.55 | 132.6 | 0.00 | 52.86 | -6.78 | 0.05 | -4.05 | EY | | 1.11 | فشاري | | 0.05 | 0.01 | 0.01 | 132.6 | 0.00 | 1.08 | -0.46 | 1.89 | 1.94 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.3 | 0.00 | 0.13 | -0.14 | -0.05 | 10.41 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.0 | 0.00 | 0.35 | -0.33 | -0.12 | 40.49 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 9.4 | 0.00 | 3.77 | -1.26 | -2.20 | 66.88 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 9.5 | 0.00 | -2.44 | -0.03 | 1.73 | 71.38 | UDStlS8 | | 5.93 | فشاري | | 0.29 | 0.03 | 0.37 | 132.6 | 0.00 | -52.19 | 6.13 | -0.29 | 73.17 | UDStlS7 | | 7.68 | کششي | | 0.37 | 0.04 | 0.41 | 132.6 | 0.00 | 53.53 | -7.42 | -0.18 | 65.08 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.3 | 0.00 | -0.42 | -0.18 | -2.12 | 67.19 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 9.3 | 0.00 | 1.75 | -1.10 | 1.65 | 71.07 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 8.1 | 0.00 | 0.63 | -0.61 | -0.22 | 65.38 | UDStlS3 | | 7.91 | فشاري | | 0.38 | 0.03 | 0.38 | 132.6 | 0.00 | -46.06 | 4.85 | -0.27 | 35.95 | UDStlS27 | | 7.89 | کششي | | 0.38 | 0.03 | 0.41 | 132.6 | 0.00 | 46.62 | -5.37 | 0.08 | 28.83 | UDStlS26 | | 11.07 | فشاري | | 0.53 | 0.04 | 0.51 | 132.6 | 0.00 | -59.09 | 8.18 | -0.02 | 36.92 | UDStlS25 | | 12.85 | فشاري | | 0.62 | 0.05 | 0.53 | 132.6 | 0.00 | 59.66 | -8.71 | -0.17 | 27.86 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.9 | 0.00 | -4.99 | 1.27 | -1.90 | 30.75 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.6 | 0.00 | 5.55 | -1.80 | 1.71 | 34.02 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.0 | 0.00 | 3.39 | -0.88 | -2.06 | 30.14 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.2 | 0.00 | -2.82 | 0.35 | 1.87 | 34.64 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.3 | 0.00 | 0.76 | -0.74 | -0.27 | 75.02 | UDStlS2 | | 9.51 | فشاري | | 0.46 | 0.04 | 0.44 | 132.6 | 0.00 | -52.58 | 6.51 | -0.15 | 36.44 | UDStlS19 | | 9.53 | فشاري | | 0.46 | 0.04 | 0.47 | 132.6 | 0.00 | 53.14 | -7.04 | -0.04 | 28.34 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.0 | 0.00 | -0.80 | 0.20 | -1.98 | 30.45 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 4.6 | 0.00 | 1.37 | -0.72 | 1.79 | 34.33 | UDStlS16 | | 4.30 | کششي | | 0.21 | 0.02 | 0.31 | 132.6 | 0.00 | -45.68 | 4.47 | -0.41 | 72.69 | UDStlS15 | | 4.29 | فشاري | | 0.21 | 0.03 | 0.33 | 132.6 | 0.00 | 47.01 | -5.75 | -0.06 | 65.57 | UDStlS14 | | 7.52 | فشاري | | 0.36 | 0.04 | 0.43 | 132.6 | 0.00 | -58.71 | 7.80 | -0.16 | 73.66 | UDStlS13 | | 9.27 | کششي | | 0.45 | 0.05 | 0.45 | 132.6 | 0.00 | 60.04 | -9.09 | -0.31 | 64.60 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 9.8 | 0.00 | -4.61 | 0.90 | -2.04 | 67.49 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.7 | 0.00 | 5.94 | -2.18 | 1.57 | 70.76 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 7.0 | 0.00 | 0.49 | -0.46 | -0.17 | 56.68 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 7.0 | 0.00 | 0.56 | -0.54 | -0.20 | 56.94 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.0 | 0.00 | 0.35 | -0.33 | -0.12 | 40.49 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.2 | 0.00 | 0.36 | -0.33 | -0.12 | 41.80 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.0 | 0.00 | 0.35 | -0.33 | -0.12 | 40.71 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.49 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.3 | 0.00 | 0.05 | -0.05 | 0.00 | 2.27 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 1.9 | 0.00 | 0.14 | -0.20 | -0.03 | 15.73 | EXTERIOR WALL | | 7.86 | کششي | | 0.38 | 0.03 | 0.36 | 132.6 | 0.00 | 46.13 | -4.89 | 1.10 | 41.27 | EYN | | 14.80 | کششي | | 0.71 | 0.04 | 0.60 | 132.6 | 0.00 | 59.11 | -8.16 | -0.32 | 2.53 | EYP | | 0.00 | فشاري | | 0.00 | 0.01 | 0.28 | 36.8 | 0.00 | 5.25 | -1.51 | 1.36 | 285.98 | EXN | | 0.00 | فشاري | | 0.00 | 0.01 | 0.30 | 38.3 | 0.00 | -3.09 | 0.60 | 2.26 | 310.61 | EXP | | 11.39 | فشاري | | 0.55 | 0.04 | 0.47 | 132.6 | 0.00 | 52.62 | -6.53 | 0.39 | 21.90 | EY | | 0.00 | فشاري | | 0.00 | 0.01 | 0.28 | 36.8 | 0.00 | 1.08 | -0.45 | 1.81 | 298.30 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.5 | 0.00 | 0.09 | -0.08 | 0.00 | 3.91 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 3.0 | 0.00 | 0.25 | -0.21 | -0.01 | 23.98 | D | | 24.70 | کششي | | 1.19 | 0.01 | 0.80 | 0.0 | 0.00 | 3.56 | -1.00 | -2.27 | -273.25 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.33 | 43.0 | 0.00 | -2.63 | 0.20 | 2.26 | 347.97 | UDStlS8 | | 11.37 | فشاري | | 0.55 | 0.03 | 0.44 | 132.6 | 0.00 | -52.16 | 6.13 | -0.40 | 15.46 | UDStlS7 | | 7.68 | کششي | | 0.37 | 0.04 | 0.41 | 132.6 | 0.00 | 53.09 | -6.92 | 0.38 | 59.26 | UDStlS6 | | 24.68 | کششي | | 1.19 | 0.01 | 0.78 | 0.0 | 0.00 | -0.61 | 0.06 | -1.82 | -260.94 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.32 | 41.4 | 0.00 | 1.54 | -0.85 | 1.80 | 335.66 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 4.5 | 0.00 | 0.44 | -0.38 | -0.01 | 35.08 | UDStlS3 | | 13.54 | کششي | | 0.65 | 0.03 | 0.53 | 132.6 | 0.00 | -45.93 | 4.72 | -1.10 | -22.09 | UDStlS27 | | 6.09 | کششي | | 0.29 | 0.03 | 0.33 | 132.6 | 0.00 | 46.34 | -5.05 | 1.09 | 60.45 | UDStlS26 | | 12.93 | فشاري | | 0.62 | 0.04 | 0.51 | 132.6 | 0.00 | -58.91 | 8.00 | 0.31 | 16.65 | UDStlS25 | | 12.90 | کششي | | 0.62 | 0.05 | 0.55 | 132.6 | 0.00 | 59.31 | -8.33 | -0.32 | 21.71 | UDStlS24 | | 24.70 | کششي | | 1.19 | 0.01 | 0.79 | 0.0 | 0.00 | -5.05 | 1.35 | -1.36 | -266.80 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.30 | 39.2 | 0.00 | 5.45 | -1.68 | 1.35 | 305.16 | UDStlS22 | | 49337.97 | کششي | | 2374.11 | 0.01 | 0.77 | 0.0 | 0.00 | 3.29 | -0.77 | -2.27 | -291.43 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.31 | 40.7 | 0.00 | -2.89 | 0.44 | 2.26 | 329.79 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.9 | 0.00 | 0.52 | -0.45 | 0.00 | 38.69 | UDStlS2 | | 13.25 | کششي | | 0.64 | 0.03 | 0.56 | 132.6 | 0.00 | -52.42 | 6.36 | -0.40 | -2.72 | UDStlS19 | | 9.48 | فشاري | | 0.46 | 0.04 | 0.44 | 132.6 | 0.00 | 52.82 | -6.69 | 0.39 | 41.08 | UDStlS18 | | 24.73 | کششي | | 1.19 | 0.01 | 0.84 | 0.0 | 0.00 | -0.88 | 0.29 | -1.82 | -279.12 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.30 | 39.2 | 0.00 | 1.28 | -0.62 | 1.81 | 317.48 | UDStlS16 | | 11.63 | کششي | | 0.56 | 0.03 | 0.48 | 132.6 | 0.00 | -45.67 | 4.49 | -1.10 | -3.91 | UDStlS15 | | 4.28 | فشاري | | 0.21 | 0.03 | 0.32 | 132.6 | 0.00 | 46.60 | -5.29 | 1.09 | 78.63 | UDStlS14 | | 11.09 | فشاري | | 0.53 | 0.04 | 0.50 | 132.6 | 0.00 | -58.64 | 7.76 | 0.31 | 34.83 | UDStlS13 | | 11.06 | فشاري | | 0.53 | 0.05 | 0.50 | 132.6 | 0.00 | 59.57 | -8.56 | -0.32 | 39.89 | UDStlS12 | | 24.66 | کششي | | 1.19 | 0.01 | 0.74 | 0.0 | 0.00 | -4.78 | 1.11 | -1.36 | -248.62 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.32 | 41.6 | 0.00 | 5.71 | -1.91 | 1.35 | 323.34 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 4.1 | 0.00 | 0.35 | -0.29 | -0.01 | 33.57 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.8 | 0.00 | 0.39 | -0.34 | 0.00 | 30.15 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 3.0 | 0.00 | 0.25 | -0.21 | -0.01 | 23.98 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 3.0 | 0.00 | 0.26 | -0.21 | -0.01 | 24.47 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 3.0 | 0.00 | 0.25 | -0.21 | -0.01 | 24.06 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.01 | 0.00 | 0.00 | 1.19 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.7 | 0.00 | 0.09 | -0.07 | -0.02 | 5.56 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.0 | 0.00 | -0.05 | 0.00 | -0.04 | 16.05 | EXTERIOR WALL | | 15.21 | کششي | | 0.73 | 0.03 | 0.58 | 132.6 | 0.00 | 51.04 | -6.00 | 1.10 | -21.55 | EYN | | 12.97 | فشاري | | 0.62 | 0.04 | 0.53 | 132.6 | 0.00 | 57.25 | -7.58 | -0.32 | 19.93 | EYP | | 942913.52 | کششي | | **45372.44** | 0.01 | 0.76 | 0.0 | 0.00 | 2.49 | -0.77 | 1.40 | -285.74 | EXN | | 26.76 | کششي | | 1.29 | 0.01 | 0.93 | 0.0 | 0.00 | -1.50 | 0.25 | 2.31 | -312.10 | EXP | | 13.16 | کششي | | 0.63 | 0.04 | 0.56 | 132.6 | 0.00 | 54.15 | -6.79 | 0.39 | -0.81 | EY | | 24.99 | کششي | | 1.20 | 0.01 | 0.84 | 0.0 | 0.00 | 0.49 | -0.26 | 1.86 | -298.92 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.2 | 0.00 | 0.15 | -0.12 | -0.04 | 9.58 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.8 | 0.00 | 0.39 | -0.30 | -0.09 | 38.93 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.36 | 46.7 | 0.00 | 2.25 | -0.84 | -2.49 | 377.89 | UDStlS9 | | 24.67 | کششي | | 1.19 | 0.01 | 0.74 | 0.0 | 0.00 | -0.76 | -0.34 | 2.13 | -246.32 | UDStlS8 | | 5.94 | فشاري | | 0.29 | 0.03 | 0.39 | 132.6 | 0.00 | -53.40 | 6.20 | -0.57 | 66.60 | UDStlS7 | | 7.64 | فشاري | | 0.37 | 0.04 | 0.41 | 132.6 | 0.00 | 54.89 | -7.38 | 0.21 | 64.98 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.34 | 45.0 | 0.00 | 0.26 | -0.33 | -2.04 | 364.71 | UDStlS5 | | 2022.90 | کششي | | 97.34 | 0.01 | 0.62 | 0.0 | 0.00 | 1.24 | -0.85 | 1.68 | -233.13 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 7.9 | 0.00 | 0.71 | -0.56 | -0.17 | 62.17 | UDStlS3 | | 7.75 | فشاري | | 0.37 | 0.03 | 0.41 | 132.6 | 0.00 | -50.73 | 5.75 | -1.17 | 52.69 | UDStlS27 | | 11.41 | کششي | | 0.55 | 0.03 | 0.50 | 132.6 | 0.00 | 51.35 | -6.24 | 1.03 | 9.60 | UDStlS26 | | 13.03 | فشاري | | 0.63 | 0.04 | 0.47 | 132.6 | 0.00 | -56.94 | 7.34 | 0.24 | 11.21 | UDStlS25 | | 9.33 | فشاري | | 0.45 | 0.04 | 0.47 | 132.6 | 0.00 | 57.56 | -7.82 | -0.39 | 51.07 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.30 | 39.1 | 0.00 | -2.18 | 0.53 | -1.48 | 316.88 | UDStlS23 | | 24.67 | کششي | | 1.19 | 0.01 | 0.75 | 0.0 | 0.00 | 2.80 | -1.01 | 1.33 | -254.60 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.33 | 42.4 | 0.00 | 1.81 | -0.49 | -2.38 | 343.24 | UDStlS21 | | 24.72 | کششي | | 1.19 | 0.01 | 0.84 | 0.0 | 0.00 | -1.19 | 0.01 | 2.24 | -280.96 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.0 | 0.00 | 0.85 | -0.67 | -0.21 | 71.04 | UDStlS2 | | 9.54 | فشاري | | 0.46 | 0.04 | 0.46 | 132.6 | 0.00 | -53.83 | 6.55 | -0.47 | 31.95 | UDStlS19 | | 11.24 | کششي | | 0.54 | 0.04 | 0.48 | 132.6 | 0.00 | 54.46 | -7.03 | 0.32 | 30.33 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.31 | 40.7 | 0.00 | -0.18 | 0.02 | -1.93 | 330.06 | UDStlS17 | | 12201.27 | کششي | | 587.12 | 0.01 | 0.71 | 0.0 | 0.00 | 0.80 | -0.50 | 1.78 | -267.78 | UDStlS16 | | 4.22 | فشاري | | 0.20 | 0.03 | 0.33 | 132.6 | 0.00 | -50.30 | 5.41 | -1.28 | 87.33 | UDStlS15 | | 7.74 | فشاري | | 0.37 | 0.04 | 0.42 | 132.6 | 0.00 | 51.79 | -6.58 | 0.92 | 44.24 | UDStlS14 | | 9.38 | فشاري | | 0.45 | 0.04 | 0.46 | 132.6 | 0.00 | -56.50 | 6.99 | 0.14 | 45.86 | UDStlS13 | | 5.80 | فشاري | | 0.28 | 0.04 | 0.41 | 132.6 | 0.00 | 58.00 | -8.17 | -0.50 | 85.71 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.33 | 43.4 | 0.00 | -1.74 | 0.18 | -1.58 | 351.53 | UDStlS11 | | 21.78 | کششي | | 1.05 | 0.01 | 0.65 | 0.0 | 0.00 | 3.23 | -1.36 | 1.22 | -219.95 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.7 | 0.00 | 0.54 | -0.42 | -0.13 | 54.50 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.9 | 0.00 | 0.63 | -0.50 | -0.15 | 54.07 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.8 | 0.00 | 0.39 | -0.30 | -0.09 | 38.93 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.0 | 0.00 | 0.40 | -0.30 | -0.09 | 40.12 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.8 | 0.00 | 0.39 | -0.30 | -0.09 | 39.12 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.01 | 0.00 | 0.00 | 1.36 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.8 | 0.00 | 0.05 | 0.00 | 0.01 | 6.29 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.0 | 0.00 | -0.09 | 0.00 | 0.01 | 16.12 | EXTERIOR WALL | | 13.04 | کششي | | 0.63 | 0.04 | 0.55 | 132.6 | 0.00 | 56.59 | -7.28 | 1.10 | 9.64 | EYN | | 13.11 | کششي | | 0.63 | 0.04 | 0.54 | 132.6 | 0.00 | 55.20 | -6.99 | -0.32 | 9.44 | EYP | | 1.04 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | -0.69 | 0.14 | 1.41 | -0.15 | EXN | | 24.64 | کششي | | 1.19 | 0.01 | 0.00 | 132.6 | 0.00 | 0.20 | -0.05 | 2.32 | -0.02 | EXP | | 13.07 | فشاري | | 0.63 | 0.04 | 0.54 | 132.6 | 0.00 | 55.90 | -7.14 | 0.39 | 9.54 | EY | | 1.05 | کششي | | 0.05 | 0.01 | 0.00 | 0.0 | 0.00 | -0.24 | 0.05 | 1.86 | -0.08 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.3 | 0.00 | 0.09 | -0.01 | 0.01 | 10.85 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.1 | 0.00 | 0.22 | -0.03 | 0.02 | 41.05 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 8.7 | 0.00 | 0.24 | 0.00 | -2.28 | 70.58 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 8.7 | 0.00 | 0.64 | -0.09 | 2.36 | 70.54 | UDStlS8 | | 7.62 | فشاري | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | -55.46 | 7.10 | -0.35 | 61.01 | UDStlS7 | | 5.84 | فشاري | | 0.28 | 0.04 | 0.41 | 132.6 | 0.00 | 56.33 | -7.18 | 0.43 | 80.10 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 8.7 | 0.00 | 0.68 | -0.09 | -1.82 | 70.64 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 8.7 | 0.00 | 0.19 | 0.00 | 1.91 | 70.47 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 8.2 | 0.00 | 0.42 | -0.04 | 0.04 | 66.77 | UDStlS3 | | 11.20 | فشاري | | 0.54 | 0.04 | 0.51 | 132.6 | 0.00 | -56.41 | 7.26 | -1.09 | 23.20 | UDStlS27 | | 9.37 | کششي | | 0.45 | 0.04 | 0.47 | 132.6 | 0.00 | 56.77 | -7.30 | 1.12 | 42.48 | UDStlS26 | | 11.25 | فشاري | | 0.54 | 0.04 | 0.49 | 132.6 | 0.00 | -55.02 | 6.97 | 0.33 | 23.40 | UDStlS25 | | 9.41 | کششي | | 0.45 | 0.04 | 0.46 | 132.6 | 0.00 | 55.38 | -7.01 | -0.30 | 42.28 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.3 | 0.00 | 0.87 | -0.16 | -1.40 | 32.99 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.0 | 0.00 | -0.51 | 0.12 | 1.43 | 32.69 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.1 | 0.00 | -0.02 | 0.03 | -2.30 | 32.86 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.2 | 0.00 | 0.38 | -0.07 | 2.33 | 32.82 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.5 | 0.00 | 0.50 | -0.05 | 0.05 | 76.81 | UDStlS2 | | 11.22 | فشاري | | 0.54 | 0.04 | 0.51 | 132.6 | 0.00 | -55.72 | 7.12 | -0.38 | 23.30 | UDStlS19 | | 9.38 | فشاري | | 0.45 | 0.04 | 0.47 | 132.6 | 0.00 | 56.08 | -7.16 | 0.41 | 42.38 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.2 | 0.00 | 0.42 | -0.07 | -1.85 | 32.92 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.0 | 0.00 | -0.06 | 0.03 | 1.88 | 32.76 | UDStlS16 | | 7.59 | فشاري | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | -56.15 | 7.24 | -1.06 | 60.92 | UDStlS15 | | 5.85 | فشاري | | 0.28 | 0.04 | 0.41 | 132.6 | 0.00 | 57.03 | -7.33 | 1.14 | 80.20 | UDStlS14 | | 7.64 | کششي | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | -54.76 | 6.95 | 0.36 | 61.11 | UDStlS13 | | 5.86 | فشاري | | 0.28 | 0.04 | 0.40 | 132.6 | 0.00 | 55.64 | -7.03 | -0.28 | 80.00 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 9.0 | 0.00 | 1.13 | -0.18 | -1.37 | 70.70 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 8.7 | 0.00 | -0.25 | 0.10 | 1.45 | 70.41 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 7.1 | 0.00 | 0.31 | -0.04 | 0.03 | 57.47 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 7.2 | 0.00 | 0.37 | -0.03 | 0.04 | 58.20 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.1 | 0.00 | 0.22 | -0.03 | 0.02 | 41.05 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.2 | 0.00 | 0.23 | -0.03 | 0.02 | 42.41 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.1 | 0.00 | 0.23 | -0.03 | 0.02 | 41.28 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.01 | 0.00 | 0.00 | 1.59 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.27 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.0 | 0.00 | 0.17 | -0.12 | 0.00 | 7.31 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.8 | 0.00 | -0.12 | 0.01 | -0.01 | 14.72 | EXTERIOR WALL | | 12.81 | کششي | | 0.62 | 0.05 | 0.58 | 132.6 | 0.00 | 61.28 | -8.68 | 1.12 | 19.49 | EYN | | 11.30 | کششي | | 0.54 | 0.04 | 0.51 | 132.6 | 0.00 | 53.94 | -6.87 | -0.32 | 17.81 | EYP | | 1.04 | کششي | | 0.05 | 0.01 | 0.03 | 0.0 | 0.00 | -3.16 | 0.85 | 1.44 | -0.85 | EXN | | 0.97 | کششي | | 0.05 | 0.01 | 0.02 | 132.6 | 0.00 | 1.56 | -0.31 | 2.36 | 0.22 | EXP | | 12.99 | کششي | | 0.62 | 0.04 | 0.53 | 132.6 | 0.00 | 57.61 | -7.78 | 0.40 | 18.65 | EY | | 0.98 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | -0.80 | 0.27 | 1.90 | -0.31 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.6 | 0.00 | 0.29 | -0.21 | 0.00 | 12.60 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.1 | 0.00 | 0.71 | -0.56 | -0.01 | 47.49 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.1 | 0.00 | -0.18 | -0.74 | -2.38 | 81.49 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 11.0 | 0.00 | 2.93 | -1.36 | 2.34 | 81.93 | UDStlS8 | | 7.61 | فشاري | | 0.37 | 0.04 | 0.44 | 132.6 | 0.00 | -56.23 | 6.73 | -0.42 | 63.06 | UDStlS7 | | 5.78 | فشاري | | 0.28 | 0.05 | 0.40 | 132.6 | 0.00 | 58.99 | -8.83 | 0.38 | 100.36 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.8 | 0.00 | 2.18 | -1.32 | -1.92 | 82.02 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.1 | 0.00 | 0.57 | -0.78 | 1.88 | 81.39 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 9.9 | 0.00 | 1.31 | -0.99 | -0.02 | 77.33 | UDStlS3 | | 12.84 | فشاري | | 0.62 | 0.05 | 0.53 | 132.6 | 0.00 | -60.71 | 8.23 | -1.13 | 18.51 | UDStlS27 | | 9.19 | فشاري | | 0.44 | 0.05 | 0.50 | 132.6 | 0.00 | 61.85 | -9.12 | 1.11 | 57.48 | UDStlS26 | | 11.34 | فشاري | | 0.55 | 0.04 | 0.44 | 132.6 | 0.00 | -53.37 | 6.43 | 0.31 | 20.19 | UDStlS25 | | 7.65 | فشاري | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | 54.51 | -7.32 | -0.33 | 55.80 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.1 | 0.00 | 3.73 | -1.30 | -1.45 | 38.84 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.4 | 0.00 | -2.59 | 0.41 | 1.43 | 37.15 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.0 | 0.00 | -0.98 | -0.13 | -2.37 | 37.78 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.4 | 0.00 | 2.13 | -0.75 | 2.35 | 38.21 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.4 | 0.00 | 1.58 | -1.19 | -0.02 | 88.99 | UDStlS2 | | 12.97 | فشاري | | 0.62 | 0.04 | 0.53 | 132.6 | 0.00 | -57.04 | 7.33 | -0.41 | 19.35 | UDStlS19 | | 9.30 | کششي | | 0.45 | 0.05 | 0.48 | 132.6 | 0.00 | 58.18 | -8.22 | 0.39 | 56.64 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.1 | 0.00 | 1.37 | -0.72 | -1.91 | 38.31 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 4.7 | 0.00 | -0.23 | -0.17 | 1.89 | 37.68 | UDStlS16 | | 9.25 | فشاري | | 0.44 | 0.04 | 0.48 | 132.6 | 0.00 | -59.90 | 7.63 | -1.14 | 62.22 | UDStlS15 | | 5.67 | فشاري | | 0.27 | 0.05 | 0.43 | 132.6 | 0.00 | 62.66 | -9.73 | 1.10 | 101.20 | UDStlS14 | | 5.96 | کششي | | 0.29 | 0.03 | 0.41 | 132.6 | 0.00 | -52.56 | 5.83 | 0.30 | 63.90 | UDStlS13 | | 4.14 | فشاري | | 0.20 | 0.04 | 0.37 | 132.6 | 0.00 | 55.31 | -7.92 | -0.34 | 99.52 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.6 | 0.00 | 4.54 | -1.90 | -1.46 | 82.56 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.5 | 0.00 | -1.79 | -0.20 | 1.42 | 80.86 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 8.5 | 0.00 | 1.00 | -0.78 | -0.02 | 66.49 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 8.7 | 0.00 | 1.16 | -0.88 | -0.02 | 67.41 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.1 | 0.00 | 0.71 | -0.56 | -0.01 | 47.49 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.3 | 0.00 | 0.72 | -0.56 | -0.01 | 49.08 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.1 | 0.00 | 0.71 | -0.56 | -0.01 | 47.76 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.65 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.4 | 0.00 | 0.09 | -0.01 | 0.02 | 3.01 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.0 | 0.00 | 0.04 | -0.22 | 0.04 | 16.37 | EXTERIOR WALL | | 14.50 | کششي | | 0.70 | 0.05 | 0.64 | 132.6 | 0.00 | 65.60 | -9.40 | 1.10 | 10.41 | EYN | | 11.39 | کششي | | 0.55 | 0.03 | 0.50 | 132.6 | 0.00 | 51.89 | -6.06 | -0.32 | 8.86 | EYP | | 0.96 | کششي | | 0.05 | 0.01 | 0.06 | 132.6 | 0.00 | -5.81 | 1.58 | 1.37 | -0.71 | EXN | | 0.97 | کششي | | 0.05 | 0.01 | 0.03 | 132.6 | 0.00 | 3.00 | -0.57 | 2.27 | 0.28 | EXP | | 12.96 | فشاري | | 0.62 | 0.04 | 0.57 | 132.6 | 0.00 | 58.74 | -7.73 | 0.39 | 9.64 | EY | | 1.01 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | -1.40 | 0.51 | 1.82 | -0.21 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.7 | 0.00 | 0.16 | -0.02 | 0.04 | 5.19 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.3 | 0.00 | 0.36 | -0.06 | 0.08 | 25.75 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.8 | 0.00 | -2.28 | 0.46 | -2.11 | 41.41 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.5 | 0.00 | 3.73 | -0.69 | 2.43 | 41.98 | UDStlS8 | | 11.12 | فشاري | | 0.54 | 0.04 | 0.50 | 132.6 | 0.00 | -58.02 | 7.62 | -0.23 | 32.06 | UDStlS7 | | 9.27 | فشاري | | 0.45 | 0.04 | 0.48 | 132.6 | 0.00 | 59.47 | -7.85 | 0.55 | 51.33 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.8 | 0.00 | 2.13 | -0.62 | -1.66 | 41.91 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.1 | 0.00 | -0.68 | 0.39 | 1.98 | 41.49 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.0 | 0.00 | 0.69 | -0.11 | 0.15 | 39.27 | UDStlS3 | | 14.50 | کششي | | 0.70 | 0.05 | 0.64 | 132.6 | 0.00 | -65.31 | 9.36 | -1.04 | 10.19 | UDStlS27 | | 12.63 | فشاري | | 0.61 | 0.05 | 0.60 | 132.6 | 0.00 | 65.89 | -9.45 | 1.16 | 31.02 | UDStlS26 | | 11.40 | فشاري | | 0.55 | 0.03 | 0.49 | 132.6 | 0.00 | -51.60 | 6.01 | 0.38 | 11.75 | UDStlS25 | | 9.52 | کششي | | 0.46 | 0.03 | 0.46 | 132.6 | 0.00 | 52.17 | -6.11 | -0.25 | 29.46 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.4 | 0.00 | 6.10 | -1.63 | -1.30 | 21.31 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.0 | 0.00 | -5.52 | 1.54 | 1.43 | 19.90 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.6 | 0.00 | -2.72 | 0.53 | -2.21 | 20.32 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.0 | 0.00 | 3.29 | -0.62 | 2.33 | 20.89 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.7 | 0.00 | 0.84 | -0.13 | 0.19 | 44.07 | UDStlS2 | | 12.95 | فشاري | | 0.62 | 0.04 | 0.46 | 132.6 | 0.00 | -58.46 | 7.69 | -0.33 | 10.97 | UDStlS19 | | 11.09 | کششي | | 0.53 | 0.04 | 0.53 | 132.6 | 0.00 | 59.03 | -7.78 | 0.45 | 30.24 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 3.1 | 0.00 | 1.69 | -0.55 | -1.75 | 20.82 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.02 | 2.9 | 0.00 | -1.12 | 0.46 | 1.88 | 20.39 | UDStlS16 | | 12.63 | فشاري | | 0.61 | 0.05 | 0.57 | 132.6 | 0.00 | -64.88 | 9.29 | -0.94 | 31.28 | UDStlS15 | | 10.82 | فشاري | | 0.52 | 0.05 | 0.55 | 132.6 | 0.00 | 66.32 | -9.52 | 1.26 | 52.11 | UDStlS14 | | 9.56 | فشاري | | 0.46 | 0.03 | 0.44 | 132.6 | 0.00 | -51.16 | 5.95 | 0.48 | 32.84 | UDStlS13 | | 7.70 | کششي | | 0.37 | 0.03 | 0.42 | 132.6 | 0.00 | 52.61 | -6.17 | -0.16 | 50.55 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.0 | 0.00 | 6.53 | -1.70 | -1.20 | 42.40 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 7.0 | 0.00 | -5.09 | 1.47 | 1.53 | 40.99 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.6 | 0.00 | 0.50 | -0.08 | 0.11 | 36.06 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 4.4 | 0.00 | 0.62 | -0.09 | 0.14 | 33.95 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.3 | 0.00 | 0.36 | -0.06 | 0.08 | 25.75 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.4 | 0.00 | 0.36 | -0.06 | 0.08 | 26.40 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.3 | 0.00 | 0.36 | -0.06 | 0.08 | 25.86 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.01 | 0.00 | 0.00 | 1.41 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.9 | 0.00 | 0.19 | -0.12 | 0.02 | 6.62 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.3 | 0.00 | -0.12 | -0.03 | 0.00 | 18.29 | EXTERIOR WALL | | 16.27 | کششي | | 0.78 | 0.05 | 0.67 | 132.6 | 0.00 | 65.94 | -9.77 | 0.06 | 2.56 | EYN | | 13.24 | فشاري | | 0.64 | 0.03 | 0.53 | 132.6 | 0.00 | 52.16 | -6.35 | -0.04 | 1.97 | EYP | | 0.96 | کششي | | 0.05 | 0.01 | 0.06 | 132.6 | 0.00 | -5.87 | 1.65 | 1.86 | -1.65 | EXN | | 0.97 | کششي | | 0.05 | 0.01 | 0.03 | 132.6 | 0.00 | 2.99 | -0.56 | 1.93 | -1.28 | EXP | | 14.80 | کششي | | 0.71 | 0.04 | 0.60 | 132.6 | 0.00 | 59.05 | -8.06 | 0.01 | 2.27 | EY | | 1.02 | کششي | | 0.05 | 0.01 | 0.02 | 0.0 | 0.00 | -1.44 | 0.55 | 1.90 | -1.46 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.5 | 0.00 | 0.32 | -0.21 | 0.03 | 11.42 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.5 | 0.00 | 0.71 | -0.49 | 0.07 | 42.94 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 9.7 | 0.00 | -1.56 | -0.42 | -1.79 | 75.18 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.4 | 0.00 | 4.43 | -1.53 | 2.08 | 72.63 | UDStlS8 | | 7.54 | کششي | | 0.36 | 0.04 | 0.42 | 132.6 | 0.00 | -57.62 | 7.09 | 0.14 | 71.64 | UDStlS7 | | 7.45 | فشاري | | 0.36 | 0.05 | 0.45 | 132.6 | 0.00 | 60.48 | -9.04 | 0.15 | 76.17 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.2 | 0.00 | 2.87 | -1.52 | -1.75 | 75.37 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 8.9 | 0.00 | 0.00 | -0.43 | 2.04 | 72.45 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.07 | 9.0 | 0.00 | 1.36 | -0.92 | 0.14 | 69.94 | UDStlS3 | | 12.63 | فشاري | | 0.61 | 0.05 | 0.57 | 132.6 | 0.00 | -65.37 | 9.38 | 0.00 | 31.79 | UDStlS27 | | 12.58 | کششي | | 0.61 | 0.06 | 0.58 | 132.6 | 0.00 | 66.51 | -10.16 | 0.12 | 36.91 | UDStlS26 | | 9.54 | کششي | | 0.46 | 0.03 | 0.44 | 132.6 | 0.00 | -51.59 | 5.96 | 0.10 | 32.38 | UDStlS25 | | 9.50 | کششي | | 0.46 | 0.04 | 0.46 | 132.6 | 0.00 | 52.73 | -6.74 | 0.01 | 36.32 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 7.4 | 0.00 | 6.44 | -2.04 | -1.81 | 36.00 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.2 | 0.00 | -5.30 | 1.26 | 1.92 | 32.70 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.2 | 0.00 | -2.42 | 0.17 | -1.87 | 35.63 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.4 | 0.00 | 3.56 | -0.95 | 1.99 | 33.08 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.4 | 0.00 | 1.67 | -1.13 | 0.17 | 80.51 | UDStlS2 | | 11.10 | فشاري | | 0.53 | 0.04 | 0.51 | 132.6 | 0.00 | -58.48 | 7.67 | 0.05 | 32.08 | UDStlS19 | | 11.05 | کششي | | 0.53 | 0.05 | 0.52 | 132.6 | 0.00 | 59.62 | -8.45 | 0.07 | 36.62 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.1 | 0.00 | 2.01 | -0.94 | -1.84 | 35.81 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.3 | 0.00 | -0.87 | 0.15 | 1.96 | 32.89 | UDStlS16 | | 9.09 | فشاري | | 0.44 | 0.05 | 0.50 | 132.6 | 0.00 | -64.51 | 8.80 | 0.08 | 71.35 | UDStlS15 | | 8.97 | فشاري | | 0.43 | 0.06 | 0.53 | 132.6 | 0.00 | 67.38 | -10.75 | 0.21 | 76.47 | UDStlS14 | | 5.97 | فشاري | | 0.29 | 0.03 | 0.36 | 132.6 | 0.00 | -50.72 | 5.38 | 0.19 | 71.93 | UDStlS13 | | 5.91 | فشاري | | 0.28 | 0.04 | 0.38 | 132.6 | 0.00 | 53.59 | -7.32 | 0.10 | 75.88 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.02 | 0.09 | 11.9 | 0.00 | 7.30 | -2.62 | -1.72 | 75.56 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.3 | 0.00 | -4.43 | 0.68 | 2.01 | 72.26 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 7.7 | 0.00 | 1.00 | -0.69 | 0.10 | 60.11 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 7.9 | 0.00 | 1.22 | -0.83 | 0.12 | 60.98 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.5 | 0.00 | 0.71 | -0.49 | 0.07 | 42.94 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.7 | 0.00 | 0.72 | -0.49 | 0.07 | 44.35 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.5 | 0.00 | 0.71 | -0.49 | 0.07 | 43.17 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.01 | 0.00 | 0.00 | 1.80 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.31 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.1 | 0.00 | 0.06 | -0.01 | 0.01 | 8.69 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.3 | 0.00 | -0.08 | -0.01 | 0.00 | 2.04 | EXTERIOR WALL | | 0.80 | فشاري | | 0.04 | 0.06 | 0.38 | 132.6 | 0.00 | 59.22 | -10.41 | 0.06 | 147.00 | EYN | | 0.80 | فشاري | | 0.04 | 0.05 | 0.37 | 132.6 | 0.00 | 57.78 | -10.05 | -0.04 | 143.99 | EYP | | 1.06 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | -0.72 | 0.17 | 1.91 | -2.12 | EXN | | 1.01 | کششي | | 0.05 | 0.01 | 0.00 | 0.0 | 0.00 | 0.21 | -0.06 | 1.97 | -0.21 | EXP | | 0.80 | فشاري | | 0.04 | 0.06 | 0.38 | 132.6 | 0.00 | 58.50 | -10.23 | 0.01 | 145.49 | EY | | 1.00 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | -0.25 | 0.06 | 1.94 | -1.17 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.8 | 0.00 | 0.11 | -0.02 | 0.02 | 14.98 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.5 | 0.00 | 0.25 | -0.05 | 0.04 | 52.64 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.4 | 0.00 | 0.28 | -0.05 | -1.89 | 92.38 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.4 | 0.00 | 0.70 | -0.16 | 2.05 | 91.96 | UDStlS8 | | 18.77 | کششي | | 0.90 | 0.06 | 0.76 | 132.6 | 0.00 | -58.01 | 10.13 | 0.07 | -53.33 | UDStlS7 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.42 | 65.4 | 0.00 | 58.99 | -10.34 | 0.09 | 237.66 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.5 | 0.00 | 0.74 | -0.16 | -1.86 | 93.33 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.2 | 0.00 | 0.24 | -0.05 | 2.02 | 91.00 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.08 | 10.8 | 0.00 | 0.47 | -0.10 | 0.08 | 87.34 | UDStlS3 | | 24.64 | کششي | | 1.19 | 0.06 | 0.94 | 132.6 | 0.00 | -59.03 | 10.37 | -0.03 | -104.89 | UDStlS27 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.39 | 77.4 | 0.00 | 59.42 | -10.45 | 0.09 | 189.11 | UDStlS26 | | 24.63 | کششي | | 1.19 | 0.05 | 0.91 | 132.6 | 0.00 | -57.58 | 10.01 | 0.08 | -101.87 | UDStlS25 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.38 | 74.7 | 0.00 | 57.97 | -10.09 | -0.01 | 186.10 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.7 | 0.00 | 0.91 | -0.21 | -1.87 | 44.24 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 4.9 | 0.00 | -0.52 | 0.13 | 1.94 | 39.99 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.2 | 0.00 | -0.02 | 0.02 | -1.94 | 42.33 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.2 | 0.00 | 0.41 | -0.10 | 2.00 | 41.90 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.10 | 12.5 | 0.00 | 0.57 | -0.12 | 0.09 | 101.20 | UDStlS2 | | 24.63 | کششي | | 1.19 | 0.06 | 0.92 | 132.6 | 0.00 | -58.30 | 10.19 | 0.02 | -103.38 | UDStlS19 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.39 | 76.0 | 0.00 | 58.70 | -10.27 | 0.04 | 187.61 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.3 | 0.00 | 0.45 | -0.10 | -1.91 | 43.28 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.1 | 0.00 | -0.06 | 0.02 | 1.97 | 40.95 | UDStlS16 | | 20.47 | کششي | | 0.98 | 0.06 | 0.76 | 132.6 | 0.00 | -58.73 | 10.31 | 0.02 | -54.83 | UDStlS15 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.43 | 66.3 | 0.00 | 59.71 | -10.52 | 0.14 | 239.17 | UDStlS14 | | 18.75 | کششي | | 0.90 | 0.05 | 0.74 | 132.6 | 0.00 | -57.29 | 9.94 | 0.12 | -51.82 | UDStlS13 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.41 | 64.5 | 0.00 | 58.27 | -10.15 | 0.04 | 236.15 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 12.0 | 0.00 | 1.21 | -0.28 | -1.83 | 94.29 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 11.1 | 0.00 | -0.23 | 0.07 | 1.99 | 90.04 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.1 | 0.00 | 0.34 | -0.07 | 0.05 | 73.70 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.4 | 0.00 | 0.42 | -0.09 | 0.07 | 76.31 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.5 | 0.00 | 0.25 | -0.05 | 0.04 | 52.64 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.7 | 0.00 | 0.25 | -0.05 | 0.04 | 54.44 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.5 | 0.00 | 0.25 | -0.05 | 0.04 | 52.96 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.01 | 0.00 | 0.00 | 1.94 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.1 | 0.00 | 0.00 | 0.03 | -0.01 | 9.02 | TIGHE | | 1.00 | کششي | | 0.05 | 0.00 | 0.00 | 0.0 | 0.00 | -0.05 | 0.00 | 0.00 | -0.30 | EXTERIOR WALL | | 0.82 | فشاري | | 0.04 | 0.05 | 0.35 | 132.6 | 0.00 | 53.44 | -8.84 | 0.06 | 135.64 | EYN | | 0.80 | فشاري | | 0.04 | 0.06 | 0.39 | 132.6 | 0.00 | 59.90 | -10.73 | -0.04 | 146.20 | EYP | | 0.97 | فشاري | | 0.05 | 0.01 | 0.02 | 132.6 | 0.00 | 2.59 | -0.89 | 1.91 | 2.33 | EXN | | 0.97 | کششي | | 0.05 | 0.01 | 0.03 | 132.6 | 0.00 | -1.57 | 0.33 | 1.98 | -4.38 | EXP | | 0.80 | فشاري | | 0.04 | 0.05 | 0.37 | 132.6 | 0.00 | 56.67 | -9.78 | 0.01 | 140.92 | EY | | 1.04 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | 0.51 | -0.28 | 1.94 | -1.02 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.9 | 0.00 | 0.01 | 0.06 | -0.03 | 15.56 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.7 | 0.00 | 0.03 | 0.13 | -0.06 | 54.07 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.10 | 12.7 | 0.00 | 1.62 | -0.07 | -2.10 | 99.31 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.2 | 0.00 | -1.52 | 0.59 | 1.86 | 90.56 | UDStlS8 | | 18.82 | کششي | | 0.91 | 0.05 | 0.71 | 132.6 | 0.00 | -56.62 | 10.04 | -0.13 | -45.99 | UDStlS7 | | 0.00 | فشاري | | 0.00 | 0.05 | 0.41 | 62.5 | 0.00 | 56.72 | -9.52 | -0.11 | 235.86 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.9 | 0.00 | -0.46 | 0.54 | -2.06 | 95.96 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.6 | 0.00 | 0.56 | -0.02 | 1.82 | 93.91 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.08 | 11.1 | 0.00 | 0.05 | 0.25 | -0.11 | 89.98 | UDStlS3 | | 23.07 | کششي | | 1.11 | 0.05 | 0.82 | 132.6 | 0.00 | -53.41 | 8.94 | -0.11 | -92.39 | UDStlS27 | | 0.00 | فشاري | | 0.00 | 0.05 | 0.36 | 46.6 | 0.00 | 53.46 | -8.73 | 0.01 | 178.89 | UDStlS26 | | 24.61 | کششي | | 1.18 | 0.06 | 0.92 | 132.6 | 0.00 | -59.88 | 10.84 | 0.00 | -102.95 | UDStlS25 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.40 | 51.5 | 0.00 | 59.93 | -10.62 | -0.09 | 189.46 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.9 | 0.00 | -2.56 | 1.00 | -1.96 | 40.92 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.4 | 0.00 | 2.61 | -0.79 | 1.86 | 45.59 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.4 | 0.00 | 1.59 | -0.22 | -2.03 | 47.63 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.3 | 0.00 | -1.55 | 0.44 | 1.93 | 38.88 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.10 | 12.9 | 0.00 | 0.05 | 0.30 | -0.14 | 104.38 | UDStlS2 | | 22.96 | کششي | | 1.10 | 0.05 | 0.87 | 132.6 | 0.00 | -56.65 | 9.89 | -0.06 | -97.67 | UDStlS19 | | 0.00 | فشاري | | 0.00 | 0.05 | 0.38 | 72.0 | 0.00 | 56.69 | -9.68 | -0.04 | 184.17 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.5 | 0.00 | -0.48 | 0.39 | -1.99 | 44.28 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.4 | 0.00 | 0.53 | -0.18 | 1.89 | 42.23 | UDStlS16 | | 17.01 | کششي | | 0.82 | 0.05 | 0.67 | 132.6 | 0.00 | -53.39 | 9.10 | -0.18 | -40.70 | UDStlS15 | | 0.00 | فشاري | | 0.00 | 0.05 | 0.39 | 58.8 | 0.00 | 53.49 | -8.58 | -0.06 | 230.57 | UDStlS14 | | 20.50 | کششي | | 0.99 | 0.06 | 0.77 | 132.6 | 0.00 | -59.86 | 10.99 | -0.07 | -51.27 | UDStlS13 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.42 | 66.5 | 0.00 | 59.95 | -10.47 | -0.16 | 241.14 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 12.2 | 0.00 | -2.54 | 1.15 | -2.03 | 92.60 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.10 | 12.8 | 0.00 | 2.63 | -0.63 | 1.79 | 97.27 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.3 | 0.00 | 0.04 | 0.19 | -0.08 | 75.69 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.7 | 0.00 | 0.04 | 0.22 | -0.10 | 78.65 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.7 | 0.00 | 0.03 | 0.13 | -0.06 | 54.07 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.9 | 0.00 | 0.04 | 0.13 | -0.06 | 56.01 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.7 | 0.00 | 0.03 | 0.13 | -0.06 | 54.39 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.3 | 0.00 | 0.01 | 0.00 | 0.00 | 2.31 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.3 | 0.00 | -0.16 | 0.27 | -0.02 | 10.58 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.9 | 0.00 | -0.03 | -0.10 | 0.05 | 15.17 | EXTERIOR WALL | | 14.63 | کششي | | 0.70 | 0.05 | 0.60 | 132.6 | 0.00 | 61.90 | -9.40 | -0.39 | 12.99 | EYN | | 11.33 | کششي | | 0.55 | 0.04 | 0.52 | 132.6 | 0.00 | 54.50 | -7.53 | 0.07 | 12.90 | EYP | | 0.97 | فشاري | | 0.05 | 0.01 | 0.02 | 132.6 | 0.00 | -3.11 | 0.79 | 2.13 | 6.46 | EXN | | 0.00 | فشاري | | 0.00 | 0.01 | 0.01 | 1.8 | 0.00 | 1.64 | -0.41 | 1.83 | 6.52 | EXP | | 12.96 | فشاري | | 0.62 | 0.05 | 0.56 | 132.6 | 0.00 | 58.20 | -8.47 | -0.16 | 12.94 | EY | | 0.00 | فشاري | | 0.00 | 0.01 | 0.01 | 1.1 | 0.00 | -0.73 | 0.19 | 1.98 | 6.49 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.3 | 0.00 | -0.27 | 0.47 | -0.04 | 18.25 | L | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.1 | 0.00 | -0.70 | 1.14 | -0.09 | 65.39 | D | | 0.00 | فشاري | | 0.00 | 0.02 | 0.11 | 14.1 | 0.00 | -2.98 | 2.63 | -2.01 | 107.42 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.11 | 14.9 | 0.00 | 0.31 | 1.80 | 1.66 | 120.46 | UDStlS8 | | 5.75 | فشاري | | 0.28 | 0.06 | 0.41 | 132.6 | 0.00 | -59.53 | 10.68 | -0.01 | 101.00 | UDStlS7 | | 2.43 | فشاري | | 0.12 | 0.03 | 0.37 | 132.6 | 0.00 | 56.86 | -6.25 | -0.33 | 126.88 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.02 | 0.10 | 13.3 | 0.00 | -0.60 | 2.03 | -2.15 | 107.45 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.02 | 0.12 | 14.9 | 0.00 | -2.07 | 2.40 | 1.81 | 120.43 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.10 | 13.3 | 0.00 | -1.27 | 2.10 | -0.16 | 108.03 | UDStlS3 | | 10.97 | فشاري | | 0.53 | 0.06 | 0.53 | 132.6 | 0.00 | -62.45 | 10.31 | 0.32 | 39.33 | UDStlS27 | | 9.21 | فشاري | | 0.44 | 0.05 | 0.46 | 132.6 | 0.00 | 61.34 | -8.49 | -0.45 | 65.30 | UDStlS26 | | 9.43 | فشاري | | 0.45 | 0.05 | 0.46 | 132.6 | 0.00 | -55.05 | 8.45 | -0.14 | 39.42 | UDStlS25 | | 7.63 | کششي | | 0.37 | 0.04 | 0.41 | 132.6 | 0.00 | 53.94 | -6.62 | 0.01 | 65.21 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.5 | 0.00 | 2.56 | 0.12 | -2.20 | 45.85 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.4 | 0.00 | -3.67 | 1.70 | 2.06 | 58.78 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.05 | 6.3 | 0.00 | -2.20 | 1.33 | -1.90 | 45.80 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 7.6 | 0.00 | 1.09 | 0.50 | 1.77 | 58.83 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.12 | 15.4 | 0.00 | -1.52 | 2.54 | -0.20 | 124.83 | UDStlS2 | | 11.10 | فشاري | | 0.53 | 0.05 | 0.50 | 132.6 | 0.00 | -58.75 | 9.38 | 0.09 | 39.37 | UDStlS19 | | 7.56 | کششي | | 0.36 | 0.04 | 0.46 | 132.6 | 0.00 | 57.64 | -7.55 | -0.22 | 65.26 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.7 | 0.00 | 0.18 | 0.73 | -2.05 | 45.82 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 7.6 | 0.00 | -1.29 | 1.10 | 1.91 | 58.81 | UDStlS16 | | 5.68 | کششي | | 0.27 | **0.06** | 0.43 | 132.6 | 0.00 | -63.23 | 11.62 | 0.21 | 100.95 | UDStlS15 | | 2.42 | فشاري | | 0.12 | 0.04 | 0.40 | 132.6 | 0.00 | 60.56 | -7.18 | -0.56 | 126.92 | UDStlS14 | | 4.13 | فشاري | | 0.20 | 0.05 | 0.37 | 132.6 | 0.00 | -55.83 | 9.75 | -0.24 | 101.04 | UDStlS13 | | 0.82 | فشاري | | 0.04 | 0.03 | 0.35 | 132.6 | 0.00 | 53.16 | -5.32 | -0.10 | 126.83 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.11 | 13.8 | 0.00 | 1.78 | 1.43 | -2.30 | 107.47 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.02 | 0.12 | 16.2 | 0.00 | -4.45 | 3.01 | 1.96 | 120.40 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.3 | 0.00 | -0.97 | 1.60 | -0.12 | 91.55 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.09 | 11.6 | 0.00 | -1.13 | 1.88 | -0.14 | 94.23 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.1 | 0.00 | -0.70 | 1.14 | -0.09 | 65.39 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.4 | 0.00 | -0.69 | 1.14 | -0.09 | 67.70 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.1 | 0.00 | -0.70 | 1.14 | -0.09 | 65.84 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.01 | 0.00 | 0.00 | 1.17 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.6 | 0.00 | 0.04 | 0.02 | 0.02 | 5.09 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.6 | 0.00 | 0.02 | -0.13 | -0.03 | 13.25 | EXTERIOR WALL | | 27.54 | کششي | | 1.33 | 0.06 | 1.00 | 132.6 | 0.00 | 59.61 | -10.89 | -0.38 | -122.43 | EYN | | 24.68 | کششي | | 1.19 | 0.06 | 0.98 | 132.6 | 0.00 | 58.15 | -10.52 | 0.07 | -119.96 | EYP | | 0.99 | فشاري | | 0.05 | 0.01 | 0.00 | 132.6 | 0.00 | -0.72 | 0.18 | 2.05 | 1.60 | EXN | | 24.70 | فشاري | | 1.19 | 0.01 | 0.00 | 132.6 | 0.00 | 0.21 | -0.06 | 1.75 | 0.03 | EXP | | 24.67 | کششي | | 1.19 | 0.06 | 0.99 | 132.6 | 0.00 | 58.88 | -10.70 | -0.15 | -121.20 | EY | | 0.00 | فشاري | | 0.00 | 0.01 | 0.00 | 0.3 | 0.00 | -0.25 | 0.06 | 1.90 | 0.81 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.1 | 0.00 | 0.06 | 0.03 | 0.03 | 8.78 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.7 | 0.00 | 0.14 | 0.07 | 0.08 | 38.28 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 7.9 | 0.00 | 0.07 | 0.21 | -1.60 | 63.65 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 7.9 | 0.00 | 0.50 | 0.08 | 1.91 | 63.72 | UDStlS8 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.39 | 77.2 | 0.00 | -58.60 | 10.85 | 0.31 | 184.88 | UDStlS7 | | 20.64 | کششي | | 0.99 | 0.06 | 0.77 | 132.6 | 0.00 | 59.16 | -10.56 | 0.00 | -57.51 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 7.8 | 0.00 | 0.54 | 0.09 | -1.75 | 62.87 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.0 | 0.00 | 0.03 | 0.20 | 2.05 | 64.50 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 7.4 | 0.00 | 0.27 | 0.14 | 0.15 | 60.20 | UDStlS3 | | 0.80 | فشاري | | 0.04 | 0.06 | 0.38 | 132.6 | 0.00 | -59.49 | 10.95 | 0.45 | 153.05 | UDStlS27 | | 24.63 | کششي | | 1.19 | 0.06 | 0.89 | 132.6 | 0.00 | 59.72 | -10.83 | -0.32 | -91.81 | UDStlS26 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.38 | 129.5 | 0.00 | -58.04 | 10.57 | -0.01 | 150.59 | UDStlS25 | | 22.73 | کششي | | 1.09 | 0.06 | 0.87 | 132.6 | 0.00 | 58.27 | -10.46 | 0.14 | -89.34 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.8 | 0.00 | 0.84 | -0.12 | -1.98 | 29.02 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 4.2 | 0.00 | -0.61 | 0.24 | 2.11 | 32.22 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.8 | 0.00 | -0.10 | 0.12 | -1.69 | 30.59 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.8 | 0.00 | 0.33 | 0.00 | 1.82 | 30.65 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 8.4 | 0.00 | 0.33 | 0.17 | 0.18 | 68.26 | UDStlS2 | | 0.80 | فشاري | | 0.04 | 0.06 | 0.38 | 132.6 | 0.00 | -58.76 | 10.76 | 0.22 | 151.82 | UDStlS19 | | 22.73 | کششي | | 1.09 | 0.06 | 0.88 | 132.6 | 0.00 | 58.99 | -10.64 | -0.09 | -90.58 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.8 | 0.00 | 0.37 | 0.00 | -1.84 | 29.81 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.03 | 3.9 | 0.00 | -0.14 | 0.12 | 1.96 | 31.44 | UDStlS16 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.39 | 78.8 | 0.00 | -59.32 | 11.03 | 0.54 | 186.11 | UDStlS15 | | 20.63 | کششي | | 0.99 | 0.06 | 0.79 | 132.6 | 0.00 | 59.89 | -10.74 | -0.23 | -58.75 | UDStlS14 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.38 | 75.6 | 0.00 | -57.87 | 10.66 | 0.08 | 183.65 | UDStlS13 | | 20.69 | کششي | | 1.00 | 0.06 | 0.76 | 132.6 | 0.00 | 58.43 | -10.37 | 0.23 | -56.28 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.0 | 0.00 | 1.00 | -0.03 | -1.89 | 62.09 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.06 | 8.1 | 0.00 | -0.44 | 0.32 | 2.20 | 65.28 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.6 | 0.00 | 0.20 | 0.10 | 0.11 | 53.59 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 6.4 | 0.00 | 0.24 | 0.12 | 0.13 | 52.15 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.7 | 0.00 | 0.14 | 0.07 | 0.08 | 38.28 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.9 | 0.00 | 0.15 | 0.07 | 0.08 | 39.44 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.8 | 0.00 | 0.14 | 0.07 | 0.08 | 38.52 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.01 | 0.00 | 0.00 | 1.55 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.9 | 0.00 | 0.03 | 0.01 | 0.00 | 7.25 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | -0.05 | -0.01 | 0.01 | 0.69 | EXTERIOR WALL | | 24.63 | کششي | | 1.19 | 0.05 | 0.90 | 132.6 | 0.00 | 53.78 | -9.26 | -0.38 | -114.91 | EYN | | 27.54 | **کششي** | | 1.32 | 0.06 | **1.01** | 132.6 | 0.00 | 60.28 | -11.20 | 0.07 | -123.69 | EYP | | 0.97 | کششي | | 0.05 | 0.01 | 0.04 | 132.6 | 0.00 | 2.58 | -0.88 | 2.07 | -2.96 | EXN | | 0.97 | فشاري | | 0.05 | 0.01 | 0.01 | 132.6 | 0.00 | -1.60 | 0.37 | 1.78 | 2.62 | EXP | | 24.67 | کششي | | 1.19 | 0.06 | 0.94 | 132.6 | 0.00 | 57.03 | -10.23 | -0.16 | -119.30 | EY | | 1.05 | کششي | | 0.05 | 0.01 | 0.01 | 0.0 | 0.00 | 0.49 | -0.26 | 1.93 | -0.17 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 1.5 | 0.00 | 0.04 | 0.01 | -0.01 | 12.50 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.7 | 0.00 | 0.12 | 0.02 | -0.02 | 46.26 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.1 | 0.00 | 1.83 | -0.33 | -1.82 | 77.31 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.2 | 0.00 | -1.37 | 0.41 | 1.74 | 82.56 | UDStlS8 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.38 | 67.1 | 0.00 | -56.80 | 10.27 | 0.12 | 199.24 | UDStlS7 | | 18.72 | کششي | | 0.90 | 0.06 | 0.71 | 132.6 | 0.00 | 57.26 | -10.19 | -0.19 | -39.36 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 9.9 | 0.00 | -0.26 | 0.30 | -1.96 | 80.11 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 9.8 | 0.00 | 0.72 | -0.22 | 1.89 | 79.77 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.07 | 9.3 | 0.00 | 0.22 | 0.04 | -0.04 | 75.68 | UDStlS3 | | 0.00 | فشاري | | 0.00 | 0.05 | 0.34 | 43.3 | 0.00 | -53.68 | 9.28 | 0.37 | 151.91 | UDStlS27 | | 20.95 | کششي | | 1.01 | 0.05 | 0.80 | 132.6 | 0.00 | 53.88 | -9.25 | -0.40 | -77.90 | UDStlS26 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.39 | 118.3 | 0.00 | -60.19 | 11.21 | -0.09 | 160.70 | UDStlS25 | | 22.68 | کششي | | 1.09 | 0.06 | 0.88 | 132.6 | 0.00 | 60.38 | -11.18 | 0.06 | -86.69 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.7 | 0.00 | -2.48 | 0.90 | -2.09 | 39.96 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.1 | 0.00 | 2.68 | -0.87 | 2.06 | 34.05 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 4.8 | 0.00 | 1.70 | -0.35 | -1.80 | 34.38 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 5.3 | 0.00 | -1.50 | 0.38 | 1.76 | 39.63 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.08 | 10.8 | 0.00 | 0.26 | 0.04 | -0.04 | 87.24 | UDStlS2 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.37 | 101.3 | 0.00 | -56.93 | 10.25 | 0.14 | 156.30 | UDStlS19 | | 22.80 | کششي | | 1.10 | 0.06 | 0.84 | 132.6 | 0.00 | 57.13 | -10.21 | -0.17 | -82.29 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 4.6 | 0.00 | -0.39 | 0.27 | -1.94 | 37.17 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.04 | 4.7 | 0.00 | 0.59 | -0.24 | 1.91 | 36.84 | UDStlS16 | | 0.00 | فشاري | | 0.00 | 0.05 | 0.36 | 49.1 | 0.00 | -53.55 | 9.30 | 0.35 | 194.84 | UDStlS15 | | 17.00 | کششي | | 0.82 | 0.05 | 0.65 | 132.6 | 0.00 | 54.01 | -9.22 | -0.42 | -34.97 | UDStlS14 | | 0.00 | فشاري | | 0.00 | 0.06 | 0.40 | 72.5 | 0.00 | -60.05 | 11.24 | -0.11 | 203.63 | UDStlS13 | | 18.64 | کششي | | 0.90 | 0.06 | 0.75 | 132.6 | 0.00 | 60.52 | -11.16 | 0.04 | -43.75 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.9 | 0.00 | -2.35 | 0.92 | -2.11 | 82.90 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.08 | 10.3 | 0.00 | 2.81 | -0.84 | 2.04 | 76.98 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 8.0 | 0.00 | 0.17 | 0.03 | -0.03 | 64.76 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.06 | 8.1 | 0.00 | 0.19 | 0.03 | -0.03 | 66.01 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.7 | 0.00 | 0.12 | 0.02 | -0.02 | 46.26 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 5.9 | 0.00 | 0.13 | 0.02 | -0.02 | 47.80 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.7 | 0.00 | 0.12 | 0.02 | -0.02 | 46.51 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.72 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.4 | 0.00 | 0.05 | 0.04 | 0.00 | 3.22 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.1 | 0.00 | -0.38 | 0.29 | 0.04 | 16.33 | EXTERIOR WALL | | 14.42 | فشاري | | 0.69 | 0.05 | 0.61 | 132.6 | 0.00 | 65.64 | -9.41 | -1.08 | 19.89 | EYN | | 15.18 | کششي | | 0.73 | 0.03 | 0.60 | 132.6 | 0.00 | 51.91 | -6.06 | 0.26 | -21.28 | EYP | | 28.35 | کششي | | 1.36 | 0.02 | 0.95 | 0.0 | 0.00 | -5.84 | 1.62 | 2.30 | -321.82 | EXN | | 24.81 | کششي | | 1.19 | 0.01 | 0.86 | 0.0 | 0.00 | 2.98 | -0.54 | 1.44 | -295.64 | EXP | | 14.82 | کششي | | 0.71 | 0.04 | 0.60 | 132.6 | 0.00 | 58.77 | -7.74 | -0.41 | -0.70 | EY | | 26.35 | کششي | | 1.27 | 0.01 | 0.92 | 0.0 | 0.00 | -1.43 | 0.54 | 1.87 | -308.73 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.01 | 0.7 | 0.00 | 0.09 | 0.06 | -0.01 | 5.56 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.5 | 0.00 | 0.17 | 0.17 | -0.01 | 28.17 | D | | 0.00 | فشاري | | 0.00 | 0.01 | 0.32 | 42.1 | 0.00 | -2.62 | 0.87 | -1.46 | 341.06 | UDStlS9 | | 24.66 | کششي | | 1.19 | 0.01 | 0.73 | 0.0 | 0.00 | 3.34 | -0.22 | 1.43 | -250.22 | UDStlS8 | | 9.34 | فشاري | | 0.45 | 0.04 | 0.49 | 132.6 | 0.00 | -58.41 | 8.06 | 0.39 | 46.12 | UDStlS7 | | 11.03 | فشاري | | 0.53 | 0.04 | 0.49 | 132.6 | 0.00 | 59.13 | -7.41 | -0.43 | 44.73 | UDStlS6 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.34 | 43.7 | 0.00 | 1.80 | -0.22 | -1.89 | 354.15 | UDStlS5 | | 24.69 | کششي | | 1.19 | 0.01 | 0.79 | 0.0 | 0.00 | -1.07 | 0.86 | 1.85 | -263.31 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 5.3 | 0.00 | 0.35 | 0.31 | -0.02 | 42.78 | UDStlS3 | | 16.30 | **فشاري** | | 0.78 | 0.05 | **0.66** | 132.6 | 0.00 | -65.50 | 9.55 | 1.07 | 2.64 | UDStlS27 | | 12.57 | فشاري | | 0.60 | 0.05 | 0.57 | 132.6 | 0.00 | 65.77 | -9.28 | -1.08 | 42.42 | UDStlS26 | | 7.77 | فشاري | | 0.37 | 0.03 | 0.43 | 132.6 | 0.00 | -51.77 | 6.19 | -0.26 | 43.82 | UDStlS25 | | 13.25 | کششي | | 0.64 | 0.03 | 0.53 | 132.6 | 0.00 | 52.04 | -5.92 | 0.25 | 1.25 | UDStlS24 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.34 | 44.2 | 0.00 | 5.98 | -1.49 | -2.30 | 344.35 | UDStlS23 | | 26.32 | کششي | | 1.27 | 0.02 | 0.89 | 132.6 | 0.00 | -5.71 | 1.76 | 2.29 | -299.29 | UDStlS22 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.30 | 39.3 | 0.00 | -2.84 | 0.68 | -1.45 | 318.18 | UDStlS21 | | 24.71 | کششي | | 1.19 | 0.01 | 0.80 | 0.0 | 0.00 | 3.11 | -0.40 | 1.44 | -273.11 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.05 | 5.9 | 0.00 | 0.43 | 0.37 | -0.02 | 47.91 | UDStlS2 | | 12.92 | فشاري | | 0.62 | 0.04 | 0.51 | 132.6 | 0.00 | -58.64 | 7.87 | 0.40 | 23.23 | UDStlS19 | | 12.91 | فشاري | | 0.62 | 0.04 | 0.54 | 132.6 | 0.00 | 58.90 | -7.60 | -0.42 | 21.84 | UDStlS18 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.32 | 40.9 | 0.00 | 1.57 | -0.40 | -1.88 | 331.26 | UDStlS17 | | 24.75 | کششي | | 1.19 | 0.01 | 0.85 | 0.0 | 0.00 | -1.30 | 0.68 | 1.86 | -286.20 | UDStlS16 | | 14.42 | فشاري | | 0.69 | 0.05 | 0.55 | 132.6 | 0.00 | -65.27 | 9.74 | 1.06 | 25.53 | UDStlS15 | | 10.73 | کششي | | 0.52 | 0.05 | 0.51 | 132.6 | 0.00 | 66.00 | -9.09 | -1.10 | 65.31 | UDStlS14 | | 5.96 | کششي | | 0.29 | 0.03 | 0.39 | 132.6 | 0.00 | -51.54 | 6.38 | -0.27 | 66.70 | UDStlS13 | | 11.33 | کششي | | 0.55 | 0.03 | 0.46 | 132.6 | 0.00 | 52.27 | -5.73 | 0.24 | 24.14 | UDStlS12 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.36 | 47.1 | 0.00 | 6.21 | -1.30 | -2.32 | 367.24 | UDStlS11 | | 24.76 | کششي | | 1.19 | 0.02 | 0.82 | 0.0 | 0.00 | -5.48 | 1.95 | 2.28 | -276.40 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.9 | 0.00 | 0.23 | 0.24 | -0.01 | 39.43 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.04 | 4.6 | 0.00 | 0.31 | 0.27 | -0.02 | 36.95 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.5 | 0.00 | 0.17 | 0.17 | -0.01 | 28.17 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.6 | 0.00 | 0.17 | 0.17 | -0.01 | 28.89 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.5 | 0.00 | 0.17 | 0.17 | -0.01 | 28.29 | Comb1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.01 | 0.00 | 0.00 | 0.28 | live roof | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | SNOW | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.2 | 0.00 | 0.05 | 0.02 | -0.02 | 1.47 | TIGHE | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.6 | 0.00 | -0.21 | 0.11 | 0.03 | 20.85 | EXTERIOR WALL | | 20.54 | کششي | | 0.99 | 0.05 | 0.81 | 132.6 | 0.00 | 61.27 | -8.73 | -1.07 | -63.14 | EYN | | 15.08 | کششي | | 0.73 | 0.04 | 0.61 | 132.6 | 0.00 | 53.94 | -6.94 | 0.26 | -18.23 | EYP | | 0.00 | فشاري | | 0.00 | 0.01 | 0.30 | 39.3 | 0.00 | -3.08 | 0.76 | 2.28 | 318.72 | EXN | | 0.00 | فشاري | | 0.00 | 0.01 | 0.28 | 35.8 | 0.00 | 1.63 | -0.40 | 1.42 | 290.18 | EXP | | 18.73 | کششي | | 0.90 | 0.04 | 0.71 | 132.6 | 0.00 | 57.61 | -7.83 | -0.41 | -40.69 | EY | | 0.00 | فشاري | | 0.00 | 0.01 | 0.29 | 37.6 | 0.00 | -0.73 | 0.18 | 1.85 | 304.45 | EX | | 0.00 | فشاري | | 0.00 | 0.00 | 0.00 | 0.3 | 0.00 | 0.09 | 0.03 | -0.03 | 2.54 | L | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.7 | 0.00 | 0.19 | 0.09 | -0.06 | 21.89 | D | | 24.70 | کششي | | 1.19 | 0.01 | 0.77 | 0.0 | 0.00 | -1.24 | 0.57 | -1.54 | -257.68 | UDStlS9 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.31 | 39.8 | 0.00 | 2.02 | -0.23 | 1.31 | 322.67 | UDStlS8 | | 7.56 | کششي | | 0.36 | 0.04 | 0.43 | 132.6 | 0.00 | -57.22 | 8.00 | 0.29 | 73.18 | UDStlS7 | | 14.86 | کششي | | 0.71 | 0.04 | 0.62 | 132.6 | 0.00 | 57.99 | -7.66 | -0.53 | -8.19 | UDStlS6 | | 240712.47 | کششي | | 11582.94 | 0.01 | 0.72 | 0.0 | 0.00 | 1.12 | -0.01 | -1.97 | -271.95 | UDStlS5 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.31 | 41.6 | 0.00 | -0.34 | 0.35 | 1.73 | 336.94 | UDStlS4 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.9 | 0.00 | 0.37 | 0.16 | -0.11 | 30.45 | UDStlS3 | | 7.45 | کششي | | 0.36 | 0.05 | 0.44 | 132.6 | 0.00 | -61.12 | 8.80 | 1.03 | 80.65 | UDStlS27 | | 20.40 | کششي | | 0.98 | 0.05 | 0.77 | 132.6 | 0.00 | 61.42 | -8.65 | -1.12 | -45.62 | UDStlS26 | | 9.47 | فشاري | | 0.46 | 0.04 | 0.44 | 132.6 | 0.00 | -53.79 | 7.01 | -0.30 | 35.75 | UDStlS25 | | 13.17 | کششي | | 0.63 | 0.04 | 0.56 | 132.6 | 0.00 | 54.09 | -6.86 | 0.21 | -0.72 | UDStlS24 | | 25.79 | کششي | | 1.24 | 0.01 | 0.88 | 0.0 | 0.00 | 3.23 | -0.69 | -2.32 | -301.20 | UDStlS23 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.32 | 41.5 | 0.00 | -2.93 | 0.83 | 2.23 | 336.23 | UDStlS22 | | 24.74 | کششي | | 1.19 | 0.01 | 0.81 | 0.0 | 0.00 | -1.48 | 0.47 | -1.47 | -272.66 | UDStlS21 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.29 | 38.0 | 0.00 | 1.78 | -0.32 | 1.38 | 307.69 | UDStlS20 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 4.2 | 0.00 | 0.46 | 0.19 | -0.14 | 32.74 | UDStlS2 | | 9.29 | فشاري | | 0.45 | 0.04 | 0.45 | 132.6 | 0.00 | -57.46 | 7.91 | 0.36 | 58.20 | UDStlS19 | | 16.80 | کششي | | 0.81 | 0.04 | 0.66 | 132.6 | 0.00 | 57.76 | -7.76 | -0.46 | -23.17 | UDStlS18 | | 24.74 | کششي | | 1.19 | 0.01 | 0.82 | 0.0 | 0.00 | 0.88 | -0.11 | -1.90 | -286.93 | UDStlS17 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.30 | 39.7 | 0.00 | -0.58 | 0.25 | 1.80 | 321.96 | UDStlS16 | | 5.72 | فشاري | | 0.28 | 0.05 | 0.43 | 132.6 | 0.00 | -60.88 | 8.90 | 0.96 | 95.63 | UDStlS15 | | 18.48 | کششي | | 0.89 | 0.05 | 0.72 | 132.6 | 0.00 | 61.66 | -8.56 | -1.19 | -30.64 | UDStlS14 | | 7.68 | فشاري | | 0.37 | 0.04 | 0.43 | 132.6 | 0.00 | -53.55 | 7.11 | -0.38 | 50.73 | UDStlS13 | | 11.31 | فشاري | | 0.54 | 0.04 | 0.52 | 132.6 | 0.00 | 54.33 | -6.76 | 0.14 | 14.26 | UDStlS12 | | 24.81 | کششي | | 1.19 | 0.01 | 0.84 | 0.0 | 0.00 | 3.47 | -0.59 | -2.39 | -286.22 | UDStlS11 | | 0.00 | فشاري | | 0.00 | 0.01 | 0.33 | 43.4 | 0.00 | -2.70 | 0.93 | 2.16 | 351.21 | UDStlS10 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.8 | 0.00 | 0.26 | 0.13 | -0.08 | 30.65 | UDStlS1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.03 | 3.3 | 0.00 | 0.33 | 0.14 | -0.10 | 25.91 | UDStlD2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.7 | 0.00 | 0.19 | 0.09 | -0.06 | 21.89 | UDStlD1 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.7 | 0.00 | 0.19 | 0.09 | -0.06 | 22.17 | Comb2 | | 0.00 | فشاري | | 0.00 | 0.00 | 0.02 | 2.7 | 0.00 | 0.19 | 0.09 | -0.06 | 22.00 | Comb1 | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |



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| محتویات این بخش: | گزارش اتصالات مهاربندي |

|  |  |  |  |  |  |  |
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| |  | | --- | | BrVCon 1 | | |  | | --- | | Br1Con 2 | | |  | | --- | | Br1Con 1 | | BrVCon 2 | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | گزارش مهاربند تکی | | | | | مشخصات کلی گزارش | | | $level3$ | $level3$ | | نام اتصال: | Br1Con 1 | | | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فولاد |  | 3700.0 | | مقاومت نهایی کششی فلز الکترود |  | 4200.0 | | مدول الاستیسیته فولاد |  | 2040000.0 | | | |  |  | | --- | --- | | ابعاد جوش |  | |  | 0 | |  | 20 | |  | 8 | |  | 8 | |  | 6 | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب آگاهی جوش |  | 0.7500 | | پارامتر لرزه ای |  | 1.0000 | | | |  |  | | --- | --- | | نیروهای طراحی |  | |  | 19.73 | |  | 21.06 | | | | |  |  | | --- | --- | | نوع مهاربند | همگرا | | روش طراحی | تنش مجاز(ASD) | | |  | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | مشخصات المان های درگیر در اتصال مهاربند | | | $level3$ | | | | مشخصات هندسی تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE240 | | ضخامت بال تیر یا صفحه ستون |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | فاصله سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ورق اتصال | | | | طول جوش افقی با تیر |  | 30.0 | | طول جوش قائم با ستون |  | 86.0 | | پخی افقی ورق اتصال |  | 0.0 | | پخی قائم ورق اتصال |  | 0.0 | | ضخامت ورق |  | 25 | | جوش به المان های اطراف |  | دوطرفه | | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ستون | | | | مقطع ستون |  | PG/340x340x40 | | ضخامت بال |  | 40 | | |  | | |  |  |  | | --- | --- | --- | | مشخصات هندسی مهاربند | | | | مقطع مهاربند |  | 2U220 | | ارتفاع مقطع |  | 22.0 | | ضخامت لبه جوش شونده |  | 13 | | سطح مقطع کلی |  | 74.91 | | | $Image$ | | | | |  |  |  | | --- | --- | --- | | مشخصات تکمیل اتصال | | | | زاویه مهاربند با خط قائم |  | 30 ° | | طول جوش مهاربند به ورق |  | 38.0 | | فاصله قائم نقطه کار |  | 0.0 | | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ورق تقویتی لبه آزاد | | | | ضخامت ورق |  | 20 | | عرض ورق |  | 18.0 | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه نیروهای طراحی بر اساس ضوابط لرزه ای آیین نامه | $level2$ | | | | | | ضوابط لرزه ای مبحث 10 | $level4$ | | | | | |  | | | (شکل پذیری معمولی) | | $S5_C1$ | |  | |  | (شکل پذیری ویژه) | | $S5_C2$ | |  | | |  | | | 80.90 | | | |  |  | | 80.90 | | | | | 80.90 | | | | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل المان مهاربندی | | $level3$ | | | | | | | | کنترل هندسی بعد جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | | |  | 6 | |  | |  | 25 |  |  | |  | 13 | | 13 | | $S1_C2$ | 6 8 13 | | |  | | | | $Frame$ | | $S1_C3$ | 38.0 40 | | |  | | | | $Frame$ | |
|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | ارزش جوش | 534.6 | |  | | |  | | تعداد خط جوش یک مهاربند |  | |  | | |  | | نیروی جوش | 80.90 | | | |  |  | | طول کلی جوش موثر در محاسبات | 4 38.0 152.0 | | | |  | | 1.00 | | | |  | |  | | $S1_C1$ | 1.00 | | |  | | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل حداقل فاصله از المان های مجاور | | $level4$ | | | | فاصله المان مهاربندی از تیر | | 55.3 | |  | | فاصله المان مهاربندی از ستون | | 11.4 | |  | | حداقل فاصله مجاز | | 2.0 | |  | | $S1_C1$ | 11.4 2.0 | |  | $Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل ورق اتصال | | $level3$ | | | | محاسبه نیروهای قائم و برشی در محل اتصال ورق گاست و المان های اطراف (روش نیروی یکنواخت) | | | $level4$ | | | فاصله افقی نقطه کار و لبه ستون | 21.0 | |  |  | | فاصله قائم نقطه کار و لبه تیر | 12.0 | |  |  | |  | 15.8 | |  |  | |  | 51.8 | |  |  | |  | 73.7 | |  |  | | نیروی قائم بین ورق اتصال و تیر | 13.18 | |  |  | | نیروی مماسی بین ورق اتصال و تیر | 17.30 | |  |  | | نیروی قائم بین ورق اتصال و ستون | 23.07 | |  |  | | نیروی مماسی بین ورق اتصال و ستون | 56.93 | |  |  | |
|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل تنش ورق گاست در محل اتصال | | | | $level4$ | | | | | تنش مقایسه ای ترکیبی در محل اتصال به تیر | | 459.4 | | |  | |  | | $S1_C2$ | 459.4 1800.0 | | | | |  | $Frame$ | | تنش مقایسه ای ترکیبی در محل اتصال به ستون | | | 471.0 | |  | |  | | $S1_C3$ | 471.0 1800.0 | | | | |  | $Frame$ | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل کمانش لبه آزاد ورق اتصال | | $level4$ | | | | طول لبه آزاد ورق در محل اتصال به ستون |  | | 31.1 |  | |  | | |  | $Frame$ | | $S1_C4$ | 12.4451 24.7815 | | | طول لبه آزاد ورق در محل اتصال به تیر |  | | 93.1 |  | | با استفاده از ورق تقویتی کمانش کنترل می گردد | | |  | $Frame$ | | $S1_C5$ | 37.2580 24.7815 | | |

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|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش ها در عرض ویتمور | | $level4$ | | | | | | | | عرض موثر ویتمور |  | | | 49.4 | | | |  | | تنش کششی در عرض ویتمور | 654.5 | | |  | | | |  | | $S1_C1$ | 654.5 1440.0 | | | | |  | | $Frame$ | | تنش فشاری در عرض ویتمور | 654.5 | | |  | | | |  | | تنش فشاری مجاز در عرض ویتمور | 1125.4 | |  | 41.9 | | |  |  | |  | | | | 0.8 | | | |  | | | | |  | | | $Frame$ | | $S1_C2$ | 654.5 1125.4 | | | | |

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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل برش قالبی در کشش | | $level4$ | | | | | | المان اول | | | | $level5$ | | | | | سطح مقطع خالص در برش | | 208.38 | | |  | |  | | تنش برشی مجاز | | 1110.0 | | |  | |  | | سطح مقطع خالص در کشش | | 55.00 | | |  | |  | | تنش کششی مجاز | | 1850.0 | | |  | |  | | حداکثر نیروی مجاز کششی | | 333.06 | | | |  |  | | $S1_C1$ | | 80.90 333.06 | | |  | | $Frame$ | |

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| --- | --- | --- |
|  | کنترل ورق هاي تقويتي | $level2$ |

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|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق تقویتی لبه آزاد | | $level3$ | | | | | | | کنترل هندسی بعد جوش | | $level4$ | | | | | | |  | | 6 | |  |  | 25 |  |  | |  | | 20 | | 20 | | $S1_C2$ | | 6 20 20 | | |  | | | $Frame$ | | $S1_C3$ | | 200 80 | | |  | | | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش ورق سمت راست | | | $level4$ | | | | | | ارزش جوش | 1336.4 | | |  | | |  | | تعداد خط جوش |  | | |  | | |  | | نیروی جوش(نیروی طراحی ورق سمت راست ) | | 51.44 | | | |  |  | | طول کلی جوش موثر در محاسبات | | 2 20.0 40.0 | | | | | 0.96 | | | | |  | |  | | $S1_C1$ | 0.96 | | | |  | | $Frame$ | |
|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل کمانش ورق سمت راست | | $level4$ | | | | | | |  | 18.0 | |  |  | | |  | |  | 20 | | | 2.6943 | 0.1 | |  | 13.0 | | |  | | 20.0 | | | 5.2 | | |  | | | | | |  |  | | تنش مجاز فشاری |  | | | 1430.1 | | |  | | تنش فشاری موجود | 1429.0 | | |  | | |  | | $S2_C1$ | 1429.0 1430.1 | | | |  | | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل اتصال ورق گاست به ستون | | | | $level2$ | | | | | | کنترل هندسی بعد جوش اتصال | | | | $level3$ | | | | | | 8 | |  |  | | | 25 |  |  | | 23 | | 40 |  | | $S1_C1$ | 8 8 23 | | | |  | | | $Frame$ | | $S1_C2$ | 860 40 | | | |  | | | $Frame$ | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل تنش های وارد بر جوش | | $level3$ | | | | تعداد خط جوش اتصال به ستون |  | | 2 |  | | تنش قائم در طول جوش | 134.1 | |  |  | | تنش برشی در طول جوش | 331.0 | |  |  | | تنش مقایسه ای در طول جوش | 357.1 | |  |  | | ارزش جوش | 534.6 | |  |  | | $S2_C1$ | 0.1 1 | |  | $Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل تیر در مقابل بارهای متمرکز | | $level2$ | | | | کنترل تسلیم موضعی جان | | $level3$ | | | | نیروی فشاری قائم بین تیر و ورق اتصال | 13.18 | | |  | | فاصله محل اثر بار متمرکز از لبه تیر | 14.3 | | |  | |  | 24.0 | | |  | |  |  | | |  | | $S1_C1$ | 612.7 1584.0 | |  | $Frame$ | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل لهیدگی جان | | $level3$ | | | | فاصله محل اثر بار متمرکز از لبه تیر | 14.3 | | |  | |  | 12.0 | | |  | |  |  | | |  | |  |  | | |  | | $S2_C1$ | 13.18 37.42 | |  | $Frame$ | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | گزارش مهاربند تکی | | | | | مشخصات کلی گزارش | | | $level3$ | $level3$ | | نام اتصال: | Br1Con 2 | | | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فولاد |  | 3700.0 | | مقاومت نهایی کششی فلز الکترود |  | 4200.0 | | مدول الاستیسیته فولاد |  | 2040000.0 | | | |  |  | | --- | --- | | ابعاد جوش |  | |  | 0 | |  | 20 | |  | 8 | |  | 9 | |  | 6 | | | | |  |  |  | | --- | --- | --- | | فاصله مونتاژ |  | 1.5 | | ضریب آگاهی جوش |  | 0.7500 | | پارامتر لرزه ای |  | 1.0000 | | | |  |  | | --- | --- | | نیروهای طراحی |  | |  | 86.09 | |  | 82.06 | | | | |  |  | | --- | --- | | نوع مهاربند | همگرا | | روش طراحی | تنش مجاز(ASD) | | |  | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | مشخصات المان های درگیر در اتصال مهاربند | | | $level3$ | | | | مشخصات هندسی تیر | | | | --- | --- | --- | | مقطع تیر |  | IPE240 | | ضخامت بال تیر یا صفحه ستون |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | فاصله سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ورق اتصال | | | | طول جوش افقی با تیر |  | 34.0 | | طول جوش قائم با ستون |  | 82.0 | | پخی افقی ورق اتصال |  | 0.0 | | پخی قائم ورق اتصال |  | 0.0 | | ضخامت ورق |  | 25 | | جوش به المان های اطراف |  | دوطرفه | | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ستون | | | | مقطع ستون |  | PG-BOX600\*600\*40 | | ضخامت بال |  | 40 | | |  | | |  |  |  | | --- | --- | --- | | مشخصات هندسی مهاربند | | | | مقطع مهاربند |  | 2U220 | | ارتفاع مقطع |  | 22.0 | | ضخامت لبه جوش شونده |  | 13 | | سطح مقطع کلی |  | 74.91 | | | $Image$ | | | | |  |  |  | | --- | --- | --- | | مشخصات تکمیل اتصال | | | | زاویه مهاربند با خط قائم |  | 35 ° | | طول جوش مهاربند به ورق |  | 36.0 | | فاصله قائم نقطه کار |  | 0.0 | | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ورق تقویتی لبه آزاد | | | | ضخامت ورق |  | 25 | | عرض ورق |  | 13.0 | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه نیروهای طراحی بر اساس ضوابط لرزه ای آیین نامه | $level2$ | | | | | | ضوابط لرزه ای مبحث 10 | $level4$ | | | | | |  | | | (شکل پذیری معمولی) | | $S5_C1$ | |  | |  | (شکل پذیری ویژه) | | $S5_C2$ | |  | | |  | | | 86.09 | | | |  |  | | 82.06 | | | | | 86.09 | | | | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل المان مهاربندی | | $level3$ | | | | | | | | کنترل هندسی بعد جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | | |  | 6 | |  | |  | 25 |  |  | |  | 13 | | 13 | | $S1_C2$ | 6 9 13 | | |  | | | | $Frame$ | | $S1_C3$ | 36.0 40 | | |  | | | | $Frame$ | |
|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | ارزش جوش | 601.4 | |  | | |  | | تعداد خط جوش یک مهاربند |  | |  | | |  | | نیروی جوش | 86.09 | | | |  |  | | طول کلی جوش موثر در محاسبات | 4 36.0 144.0 | | | |  | | 0.99 | | | |  | |  | | $S1_C1$ | 0.99 | | |  | | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل حداقل فاصله از المان های مجاور | | $level4$ | | | | فاصله المان مهاربندی از تیر | | 47.6 | |  | | فاصله المان مهاربندی از ستون | | 6.4 | |  | | حداقل فاصله مجاز | | 2.0 | |  | | $S1_C1$ | 6.4 2.0 | |  | $Frame$ | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل ورق اتصال | | $level3$ | | | | محاسبه نیروهای قائم و برشی در محل اتصال ورق گاست و المان های اطراف (روش نیروی یکنواخت) | | | $level4$ | | | فاصله افقی نقطه کار و لبه ستون | 30.0 | |  |  | | فاصله قائم نقطه کار و لبه تیر | 12.0 | |  |  | |  | 17.8 | |  |  | |  | 57.2 | |  |  | |  | 84.1 | |  |  | | نیروی قائم بین ورق اتصال و تیر | 12.28 | |  |  | | نیروی مماسی بین ورق اتصال و تیر | 18.17 | |  |  | | نیروی قائم بین ورق اتصال و ستون | 30.71 | |  |  | | نیروی مماسی بین ورق اتصال و ستون | 58.59 | |  |  | |
|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل تنش ورق گاست در محل اتصال | | | | $level4$ | | | | | تنش مقایسه ای ترکیبی در محل اتصال به تیر | | 415.8 | | |  | |  | | $S1_C2$ | 415.8 1800.0 | | | | |  | $Frame$ | | تنش مقایسه ای ترکیبی در محل اتصال به ستون | | | 517.2 | |  | |  | | $S1_C3$ | 517.2 1800.0 | | | | |  | $Frame$ | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل کمانش لبه آزاد ورق اتصال | | $level4$ | | | | طول لبه آزاد ورق در محل اتصال به ستون |  | | 28.4 |  | |  | | |  | $Frame$ | | $S1_C4$ | 11.3701 24.7815 | | | طول لبه آزاد ورق در محل اتصال به تیر |  | | 81.0 |  | | با استفاده از ورق تقویتی کمانش کنترل می گردد | | |  | $Frame$ | | $S1_C5$ | 32.4173 24.7815 | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش ها در عرض ویتمور | | $level4$ | | | | | | | | عرض موثر ویتمور |  | | | 50.5 | | | |  | | تنش کششی در عرض ویتمور | 649.8 | | |  | | | |  | | $S1_C1$ | 649.8 1440.0 | | | | |  | | $Frame$ | | تنش فشاری در عرض ویتمور | 681.7 | | |  | | | |  | | تنش فشاری مجاز در عرض ویتمور | 1264.6 | |  | 27.2 | | |  |  | |  | | | | 0.8 | | | |  | | | | |  | | | $Frame$ | | $S1_C2$ | 681.7 1264.6 | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل برش قالبی در کشش | | $level4$ | | | | | | المان اول | | | | $level5$ | | | | | سطح مقطع خالص در برش | | 211.67 | | |  | |  | | تنش برشی مجاز | | 1110.0 | | |  | |  | | سطح مقطع خالص در کشش | | 55.00 | | |  | |  | | تنش کششی مجاز | | 1850.0 | | |  | |  | | حداکثر نیروی مجاز کششی | | 336.70 | | | |  |  | | $S1_C1$ | | 82.06 336.70 | | |  | | $Frame$ | |

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| --- | --- | --- |
|  | کنترل ورق هاي تقويتي | $level2$ |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق تقویتی لبه آزاد | | $level3$ | | | | | | | کنترل هندسی بعد جوش | | $level4$ | | | | | | |  | | 8 | |  |  | 25 |  |  | |  | | 23 | | 25 | | $S1_C2$ | | 8 20 23 | | |  | | | $Frame$ | | $S1_C3$ | | 180 80 | | |  | | | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش ورق سمت راست | | | $level4$ | | | | | | ارزش جوش | 1336.4 | | |  | | |  | | تعداد خط جوش |  | | |  | | |  | | نیروی جوش(نیروی طراحی ورق سمت راست ) | | 46.23 | | | |  |  | | طول کلی جوش موثر در محاسبات | | 2 18.0 36.0 | | | | | 0.96 | | | | |  | |  | | $S1_C1$ | 0.96 | | | |  | | $Frame$ | |
|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل کمانش ورق سمت راست | | $level4$ | | | | | | |  | 13.0 | |  |  | | |  | |  | 25 | | | 3.3575 | 0.1 | |  | 13.0 | | |  | | 18.0 | | | 3.8 | | |  | | | | | |  |  | | تنش مجاز فشاری |  | | | 1428.3 | | |  | | تنش فشاری موجود | 1422.4 | | |  | | |  | | $S2_C1$ | 1422.4 1428.3 | | | |  | | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل اتصال ورق گاست به ستون | | | | $level2$ | | | | | | کنترل هندسی بعد جوش اتصال | | | | $level3$ | | | | | | 8 | |  |  | | | 25 |  |  | | 23 | | 40 |  | | $S1_C1$ | 8 8 23 | | | |  | | | $Frame$ | | $S1_C2$ | 820 40 | | | |  | | | $Frame$ | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل تنش های وارد بر جوش | | $level3$ | | | | تعداد خط جوش اتصال به ستون |  | | 2 |  | | تنش قائم در طول جوش | 187.2 | |  |  | | تنش برشی در طول جوش | 357.2 | |  |  | | تنش مقایسه ای در طول جوش | 403.3 | |  |  | | ارزش جوش | 534.6 | |  |  | | $S2_C1$ | 0.1 1 | |  | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل تیر در مقابل بارهای متمرکز | | $level2$ | | | | کنترل تسلیم موضعی جان | | $level3$ | | | | نیروی فشاری قائم بین تیر و ورق اتصال | 12.28 | | |  | | فاصله محل اثر بار متمرکز از لبه تیر | 16.3 | | |  | |  | 24.0 | | |  | |  |  | | |  | | $S1_C1$ | 511.9 1584.0 | |  | $Frame$ | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل لهیدگی جان | | $level3$ | | | | فاصله محل اثر بار متمرکز از لبه تیر | 16.3 | | |  | |  | 12.0 | | |  | |  |  | | |  | |  |  | | |  | | $S2_C1$ | 12.28 40.80 | |  | $Frame$ | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |

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| |  |  |  |  | | --- | --- | --- | --- | | گزارش مهاربند هشتی | | | | | مشخصات کلی گزارش | | | $level3$ | | نام اتصال: | BrVCon 1 | | | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فولاد |  | 3700.0 | | مقاومت نهایی کششی فلز الکترود |  | 4200.0 | | مدول الاستیسیته فولاد |  | 2040000.0 | | | |  |  |  | | --- | --- | --- | | ابعاد جوش |  | | |  | 0 | | |  | 5 | | |  | 11 | | |  | 11 | | |  | 8 | | | نیروهای طراحی | |  | | 19.89 | | 18.91 | | 20.80 | | 22.78 | | | | |  |  |  | | --- | --- | --- | | ضریب آگاهی جوش |  | 0.7500 | | پارامتر لرزه ای |  | 1.0000 | | | | |  |  | | --- | --- | | نوع مهاربند | همگرا | | روش طراحی | تنش مجاز(ASD) | | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | مشخصات المان های درگیر در اتصال | | | $level3$ | | | | مشخصات هندسی تیر | | | | --- | --- | --- | | مقطع تیر | IPE240 | | | ضخامت بال تیر با صفحه ستون |  | 10 | | ارتفاع |  | 24.0 | | ضخامت جان |  | 6 | | فاصله سطح خارج بال تا انتهای ماهیچه جان |  | 2.5 | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ورق اتصال | | | | ضخامت ورق |  | 20 | | طول جوش افقی با تیر |  | 80.0 | | ارتفاع قائم ورق |  | 42.0 | | طول قائم ضلع راست |  | 26.0 | | طول قائم ضلع چپ |  | 26.0 | | طول افقی ضلع راست |  | 28.0 | | طول افقی ضلع چپ |  | 28.0 | | جوش به المان های اطراف |  | دوطرفه | | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی مهاربند اول | | | | مقطع مهاربند |  | 2U220 | | ارتفاع مقطع |  | 22.0 | | ضخامت ناحیه متصل شونده |  | 13 | | سطح مقطع کلی |  | 74.91 | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی مهاربند دوم | | | | مقطع مهاربند |  | 2U220 | | ارتفاع مقطع |  | 22.0 | | ضخامت ناحیه متصل شونده |  | 13 | | سطح مقطع کلی |  | 74.91 | | | |  |  |  | | --- | --- | --- | | مشخصات تکمیلی اتصال | | | | زاویه مهاربند اول با خط آزاد خمش |  | 30 ° | | زاویه مهاربند دوم با خط قائم |  | 30 ° | | فاصله افقی ورق و نقطه کار |  | 40.0 | | فاصله قائم نقطه کار |  | 12.0 | | طول جوش مهاربند اول |  | 28.0 | | طول جوش مهاربند دوم |  | 28.0 | | |  | | | $BRV$ | | | |  | | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه نیروهای طراحی بر اساس ضوابط لرزه ای آیین نامه | $level2$ | | | | | | المان اول | $level3$ | | | | | | ضوابط لرزه ای مبحث 10 | $level4$ | | | | | |  | | | (شکل پذیری معمولی) | | $S3_C1$ | |  | |  | (شکل پذیری ویژه) | | $S3_C2$ | |  | | |  | | | 80.90 | | | |  |  | | 80.90 | | | | | 80.90 | | | | |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | المان دوم | $level3$ | | | | | | ضوابط لرزه ای مبحث 10 | $level4$ | | | | | |  | | | (شکل پذیری معمولی) | | $S4_C1$ | |  | |  | (شکل پذیری ویژه) | | $S4_C2$ | |  | | |  | | | 80.90 | | | |  |  | | 80.90 | | | | | 80.90 | | | | |

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|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل المان مهاربندی | | $level2$ | | | | | | | المان اول | | $level3$ | | | | | | | کنترل هندسی بعد جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | |  | 6 | |  |  | 20 |  |  | |  | 13 | | 13 |  | | $S1_C2$ | 6 11 13 | | |  | | | $Frame$ | | $S1_C3$ | 280 44 | | |  | | | $Frame$ | |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش اتصال مهاربند به ورق گاست | | | $level4$ | | | | ارزش جوش | 735.0 |  | | |  | | تعداد خط جوش یک مهاربند |  |  | | |  | | نیروی جوش | 80.90 | | |  |  | | طول کلی جوش موثر در محاسبات | 4 28.0 112.0 | | |  | |  | 0.98 | |  | |  | | $S1_C1$ | 0.98 | |  | | $Frame$ | |

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|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | المان دوم | | $level3$ | | | | | | | کنترل هندسی بعد جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | |  | 6 | |  |  | 20 |  |  | |  | 13 | | 13 |  | | $S2_C1$ | 6 11 13 | | | |  | | $Frame$ | | $S2_C2$ | 280 44 | | |  | | | $Frame$ | |
|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | ارزش جوش | 735.0 | |  | | |  | | تعداد خط جوش یک مهاربند |  | |  | | |  | | نیروی جوش | 80.90 | | | |  |  | | طول کلی جوش موثر در محاسبات | 4 28.0 112.0 | | | |  | |  | 0.98 | | |  | |  | | $S3_C1$ | 0.98 | | |  | | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل حداقل فاصله از المان های مجاور | | $level4$ | | | | فاصله مهاربند ها از یکدیگر | | 4.9 | |  | | فاصله المان مهاربندی اول از تیر | | 3.3 | |  | | فاصله المان مهاربندی دوم از تیر | | 3.3 | |  | | حداقل فاصله مجاز | | 2.0 | |  | |  |  | | | $Frame$ | | $S9_C1$ | 3.3 2.0 | |  |  | |

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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق اتصال | | | $level2$ | | | | | محاسبه نیروهای قائم و برشی در محل اتصال ورق گاست و تیر | | | | $level3$ | | | | حالتی که مهاربند اول در کشش و مهاربند دوم در فشار باشد | | | $level4$ | | | | | نیروی برشی وارد بر تیر | 80.73 |  | | | |  | | نیروی قائم وارد بر تیر | 0.00 |  | | | |  | | حالتی که مهاربند اول در فشار و مهاربند دوم در کشش باشد | | | $level4$ | | | | | نیروی برشی وارد بر تیر | 80.73 |  | | | |  | | نیروی قائم وارد بر تیر | 0.00 |  | | | |  | | نیروی برشی غالب | 80.73 | | | |  |  | | نیروی قائم غالب | 0.00 | | | |  |  | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل تنش ورق گاست در محل اتصال به تیر | | $level3$ | | | | تنش مقایسه ای ترکیبی در محل اتصال به تیر | 874.0 | |  |  | | $S2_C1$ | 874.0 1800.0 | |  | $Frame$ | |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل کمانش لبه آزاد ورق اتصال | | | $level3$ | | | | طول لبه آزاد ورق در محل اتصال به تیر- سمت چپ | |  | | 26.0 |  | | طول لبه آزاد ورق در محل اتصال به تیر- سمت راست | |  | | 26.0 |  | | طول لبه آزاد میانی ورق | 24.0 | | |  |  | | بیشینه طول لبه آزاد | 26.0 | | |  |  | | $S3_C1$ | 13.00 24.78 | | |  | $Frame$ | |

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|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش ها در عرض ویتمور | | | $level4$ | | | | | | | | عرض ویتمور |  | | | | | | 37.1 | |  | | تنش کششی در عرض ویتمور | 1091.3 | | | | |  | | |  | | $S1_C1$ | 1091.3 1440.0 | | | | | |  | | $Frame$ | | تنش فشاری در عرض ویتمور | 1091.3 | | |  | | | | |  | | تنش فشاری مجاز در عرض ویتمور | 1371.6 | | | | 10.2 | | |  |  | | 1.2 | | |  | | 0.6 | | |  | | $S1_C2$ | | 1091.3 1371.6 | | | | |  | | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل برش قالبی در کشش | | | $level4$ | | | | سطح مقطع خالص در برش | 115.36 | | |  |  | | تنش برشی مجاز | | 1110.0 | |  |  | | سطح مقطع خالص در کشش | 44.00 | | |  |  | | تنش کششی مجاز | 1850.0 | | |  |  | | حداکثر نیروی مجاز کششی | | 209.45 | | |  | | $S2_C1$ | | 80.90 209.45 | |  | $Frame$ | |

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|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش ها در عرض ویتمور | | | $level4$ | | | | | | | | عرض ویتمور |  | | | | | | 37.1 | |  | | تنش کششی در عرض ویتمور | 1091.3 | | | | |  | | |  | | $S1_C1$ | 1091.3 1440.0 | | | | | |  | | $Frame$ | | تنش فشاری در عرض ویتمور | 1091.3 | | |  | | | | |  | | تنش فشاری مجاز در عرض ویتمور | 1371.6 | | | | 10.2 | | |  |  | | 1.2 | | |  | | 0.6 | | |  | | $S1_C2$ | | 1091.3 1371.6 | | | | |  | | $Frame$ | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل برش قالبی در کشش | | | $level4$ | | | | سطح مقطع خالص در برش | 115.36 | | |  |  | | تنش برشی مجاز | | 1110.0 | |  |  | | سطح مقطع خالص در کشش | 44.00 | | |  |  | | تنش کششی مجاز | 1850.0 | | |  |  | | حداکثر نیروی مجاز کششی | | 209.45 | | |  | | $S2_C1$ | | 80.90 209.45 | |  | $Frame$ | |

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|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق های تقویتی | | | | $level2$ | | | | | | کنترل ورق تقویتی لبه آزاد | | | | $level3$ | | | | | | کنترل هندسی بعد جوش | | | | $level4$ | | | | | | 5 | |  |  | | | 20 |  |  | | 8 | | 8 |  | | $S1_C1$ | 5 5 8 | | | |  | | | $Frame$ | | $S1_C2$ | INF NAN | | | |  | | | $Frame$ | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل تیر در مقابل بارهای متمرکز | | | $level2$ | | | | | کنترل تسلیم موضعی جان | | | $level3$ | | | | | نیروی فشاری قائم بین تیر و ورق اتصال | |  | | | |  | |  | | | | | | | |  | | 0.00 | |  | |  | |  | | 80.0 | |  | |  | |  |  | | | 0.0 | |  | | $S1_C1$ | | 0.0 1584.0 | | |  | $Frame$ | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل لهیدگی جان تیر | | $level3$ | | | |  | | | |  | |  | 80.83 | |  |  | | $S2_C1$ | 0.00 80.83 | |  | $Frame$ | |

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| تصویر جزئیات اتصال | $level3$ |
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| |  |  |  |  | | --- | --- | --- | --- | | گزارش مهاربند هشتی | | | | | مشخصات کلی گزارش | | | $level3$ | | نام اتصال: | BrVCon 2 | | | | | تنش تسلیم فولاد |  | 2400.0 | | --- | --- | --- | | تنش نهایی فولاد |  | 3700.0 | | مقاومت نهایی کششی فلز الکترود |  | 4200.0 | | مدول الاستیسیته فولاد |  | 2040000.0 | | | |  |  |  | | --- | --- | --- | | ابعاد جوش |  | | |  | 0 | | |  | 5 | | |  | 12 | | |  | 12 | | |  | 4 | | | نیروهای طراحی | |  | | 84.74 | | 83.31 | | 80.21 | | 80.54 | | | | |  |  |  | | --- | --- | --- | | ضریب آگاهی جوش |  | 0.7500 | | پارامتر لرزه ای |  | 1.0000 | | | | |  |  | | --- | --- | | نوع مهاربند | همگرا | | روش طراحی | تنش مجاز(ASD) | | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | مشخصات المان های درگیر در اتصال | | | $level3$ | | | | مشخصات هندسی تیر | | | | --- | --- | --- | | مقطع تیر |  | | | ضخامت بال تیر با صفحه ستون |  | 0 | | ارتفاع |  | 0.0 | | ضخامت جان |  | 0 | | فاصله سطح خارج بال تا انتهای ماهیچه جان |  | 0.0 | | |  |  |  | | --- | --- | --- | | مشخصات هندسی ورق اتصال | | | | ضخامت ورق |  | 30 | | طول جوش افقی با تیر |  | 78.0 | | ارتفاع قائم ورق |  | 50.0 | | طول قائم ضلع راست |  | 34.0 | | طول قائم ضلع چپ |  | 32.0 | | طول افقی ضلع راست |  | 24.0 | | طول افقی ضلع چپ |  | 28.0 | | جوش به المان های اطراف |  | دوطرفه | | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی مهاربند اول | | | | مقطع مهاربند |  | 2U220 | | ارتفاع مقطع |  | 22.0 | | ضخامت ناحیه متصل شونده |  | 13 | | سطح مقطع کلی |  | 74.91 | | | |  |  |  | | --- | --- | --- | | مشخصات هندسی مهاربند دوم | | | | مقطع مهاربند |  | 2U220 | | ارتفاع مقطع |  | 22.0 | | ضخامت ناحیه متصل شونده |  | 13 | | سطح مقطع کلی |  | 74.91 | | | |  |  |  | | --- | --- | --- | | مشخصات تکمیلی اتصال | | | | زاویه مهاربند اول با خط آزاد خمش |  | 33 ° | | زاویه مهاربند دوم با خط قائم |  | 33 ° | | فاصله افقی ورق و نقطه کار |  | 38.0 | | فاصله قائم نقطه کار |  | 0.0 | | طول جوش مهاربند اول |  | 28.0 | | طول جوش مهاربند دوم |  | 28.0 | | |  | | | $BRV$ | | | |  | | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | محاسبه نیروهای طراحی بر اساس ضوابط لرزه ای آیین نامه | $level2$ | | | | | | المان اول | $level3$ | | | | | | ضوابط لرزه ای مبحث 10 | $level4$ | | | | | |  | | | (شکل پذیری معمولی) | | $S3_C1$ | |  | |  | (شکل پذیری ویژه) | | $S3_C2$ | |  | | |  | | | 83.31 | | | |  |  | | 80.90 | | | | | 83.31 | | | | |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | المان دوم | $level3$ | | | | | | ضوابط لرزه ای مبحث 10 | $level4$ | | | | | |  | | | (شکل پذیری معمولی) | | $S4_C1$ | |  | |  | (شکل پذیری ویژه) | | $S4_C2$ | |  | | |  | | | 84.74 | | | |  |  | | 80.90 | | | | | 84.74 | | | | |

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|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | محاسبه و کنترل المان مهاربندی | | $level2$ | | | | | | | المان اول | | $level3$ | | | | | | | کنترل هندسی بعد جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | |  | 6 | |  |  | 30 |  |  | |  | 13 | | 13 |  | | $S1_C2$ | 6 12 13 | | |  | | | $Frame$ | | $S1_C3$ | 280 48 | | |  | | | $Frame$ | |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش اتصال مهاربند به ورق گاست | | | $level4$ | | | | ارزش جوش | 801.9 |  | | |  | | تعداد خط جوش یک مهاربند |  |  | | |  | | نیروی جوش | 83.31 | | |  |  | | طول کلی جوش موثر در محاسبات | 4 28.0 112.0 | | |  | |  | 0.93 | |  | |  | | $S1_C1$ | 0.93 | |  | | $Frame$ | |

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|  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | المان دوم | | $level3$ | | | | | | | کنترل هندسی بعد جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | |  | 6 | |  |  | 30 |  |  | |  | 13 | | 13 |  | | $S2_C1$ | 6 12 13 | | | |  | | $Frame$ | | $S2_C2$ | 280 48 | | |  | | | $Frame$ | |
|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش جوش اتصال مهاربند به ورق گاست | | $level4$ | | | | | | ارزش جوش | 801.9 | |  | | |  | | تعداد خط جوش یک مهاربند |  | |  | | |  | | نیروی جوش | 84.74 | | | |  |  | | طول کلی جوش موثر در محاسبات | 4 28.0 112.0 | | | |  | |  | 0.94 | | |  | |  | | $S3_C1$ | 0.94 | | |  | | $Frame$ | |

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|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | کنترل حداقل فاصله از المان های مجاور | | $level4$ | | | | فاصله مهاربند ها از یکدیگر | | 2.9 | |  | | فاصله المان مهاربندی اول از تیر | | 10.7 | |  | | فاصله المان مهاربندی دوم از تیر | | 9.0 | |  | | حداقل فاصله مجاز | | 2.0 | |  | |  |  | | | $Frame$ | | $S9_C1$ | 2.9 2.0 | |  |  | |

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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق اتصال | | | $level2$ | | | | | محاسبه نیروهای قائم و برشی در محل اتصال ورق گاست و تیر | | | | $level3$ | | | | حالتی که مهاربند اول در کشش و مهاربند دوم در فشار باشد | | | $level4$ | | | | | نیروی برشی وارد بر تیر | 90.78 |  | | | |  | | نیروی قائم وارد بر تیر | 3.21 |  | | | |  | | حالتی که مهاربند اول در فشار و مهاربند دوم در کشش باشد | | | $level4$ | | | | | نیروی برشی وارد بر تیر | 89.99 |  | | | |  | | نیروی قائم وارد بر تیر | 2.02 |  | | | |  | | نیروی برشی غالب | 90.78 | | | |  |  | | نیروی قائم غالب | 3.21 | | | |  |  | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | محاسبه و کنترل تنش ورق گاست در محل اتصال به تیر | | $level3$ | | | | تنش مقایسه ای ترکیبی در محل اتصال به تیر | 672.1 | |  |  | | $S2_C1$ | 672.1 1800.0 | |  | $Frame$ | |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل کمانش لبه آزاد ورق اتصال | | | $level3$ | | | | طول لبه آزاد ورق در محل اتصال به تیر- سمت چپ | |  | | 32.0 |  | | طول لبه آزاد ورق در محل اتصال به تیر- سمت راست | |  | | 34.0 |  | | طول لبه آزاد میانی ورق | 26.0 | | |  |  | | بیشینه طول لبه آزاد | 34.0 | | |  |  | | $S3_C1$ | 11.33 24.78 | | |  | $Frame$ | |

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|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش ها در عرض ویتمور | | | $level4$ | | | | | | | | عرض ویتمور |  | | | | | | 41.1 | |  | | تنش کششی در عرض ویتمور | 655.5 | | | | |  | | |  | | $S1_C1$ | 655.5 1440.0 | | | | | |  | | $Frame$ | | تنش فشاری در عرض ویتمور | 675.0 | | |  | | | | |  | | تنش فشاری مجاز در عرض ویتمور | 1356.7 | | | | 18.0 | | |  |  | | 1.2 | | |  | | 0.9 | | |  | | $S1_C2$ | | 675.0 1356.7 | | | | |  | | $Frame$ | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل برش قالبی در کشش | | | $level4$ | | | | سطح مقطع خالص در برش | 176.81 | | |  |  | | تنش برشی مجاز | | 1110.0 | |  |  | | سطح مقطع خالص در کشش | 66.00 | | |  |  | | تنش کششی مجاز | 1850.0 | | |  |  | | حداکثر نیروی مجاز کششی | | 318.36 | | |  | | $S2_C1$ | | 80.90 318.36 | |  | $Frame$ | |

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|  | |  |  | | --- | --- | | المان دوم | $level3$ | |

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|  | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل تنش ها در عرض ویتمور | | | $level4$ | | | | | | | | عرض ویتمور |  | | | | | | 45.5 | |  | | تنش کششی در عرض ویتمور | 592.2 | | | | |  | | |  | | $S1_C1$ | 592.2 1440.0 | | | | | |  | | $Frame$ | | تنش فشاری در عرض ویتمور | 620.3 | | |  | | | | |  | | تنش فشاری مجاز در عرض ویتمور | 1345.4 | | | | 20.0 | | |  |  | | 1.2 | | |  | | 0.9 | | |  | | $S1_C2$ | | 620.3 1345.4 | | | | |  | | $Frame$ | |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | کنترل برش قالبی در کشش | | | $level4$ | | | | سطح مقطع خالص در برش | 182.88 | | |  |  | | تنش برشی مجاز | | 1110.0 | |  |  | | سطح مقطع خالص در کشش | 66.00 | | |  |  | | تنش کششی مجاز | 1850.0 | | |  |  | | حداکثر نیروی مجاز کششی | | 325.09 | | |  | | $S2_C1$ | | 80.90 325.09 | |  | $Frame$ | |

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|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | کنترل ورق های تقویتی | | | | $level2$ | | | | | | کنترل ورق تقویتی لبه آزاد | | | | $level3$ | | | | | | کنترل هندسی بعد جوش | | | | $level4$ | | | | | | 5 | |  |  | | | 30 |  |  | | 8 | | 8 |  | | $S1_C1$ | 5 5 8 | | | |  | | | $Frame$ | | $S1_C2$ | INF NAN | | | |  | | | $Frame$ | |

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| تصویر جزئیات اتصال | $level3$ |
| $SheetImage$ | |