

Rectangular Ductwork Construction



(Up to 2" wg) Supply/Makup/Return Air



Low Pressure

| Duct Size | Connector | 6' Joints | | | | 5' Joints | | | |
|-----------|-----------|-----------|--------|-------------|--|-----------|--------|-------------|-------------------------------|
| | | Gauge | Length | Reinforcing | Intermediate Reinforcing | Gauge | Length | Reinforcing | Intermediate Reinforcing |
| 0-20" | S&D | 24ga | 71" | - | - | 26ga | 59" | - | - |
| to 24" | SS&D | 24ga | 71" | - | - | 26ga | 59" | - | - |
| to 26" | TDC | 24ga | 68¼" | - | - | 26ga | 56¼" | - | - |
| to 30" | TDC | 22ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to 36" | TDC | 22ga | 68¼" | - | - | 22ga | 56¼" | - | - |
| to 48" | TDC | 22ga | 68¼" | - | CTR | 22ga | 56¼" | - | CTR |
| to 60" | TDC | 22ga | 68¼" | JTR | CTR(2) | 22ga | 56¼" | - | CTR |
| to 72" | TDC | 22ga | 68¼" | JTR | CTR(2) | 22ga | 56¼" | JTR | CTR |
| to 84" | TDC | 20ga | 68¼" | JTR | CTR(2) | 20ga | 56¼" | JTR | CTR(2) |
| to 96" | TDC | 18ga | 68¼" | JTR | CTR(2) | 20ga | 56¼" | JTR | CTR(2) |
| to 108" | TDC | 18ga | 68¼" | JTR(2) | ZBar(2x1 1/8-12ga) & CTR | 18ga | 56¼" | JTR(2) | ZBar(2x1 1/8-12ga) & CTR |
| to 120" | TDC | 18ga | 68¼" | JTR(2) | ZBar(2x1 1/8-12ga) & CTR @2½' Spacing | 18ga | 56¼" | JTR(2) | ZBar(2x1 1/8-12ga) & CTR |
| Over-120" | TDC | 18ga | 68¼" | JTR(@4') | ZBar(2x1 1/8-12ga) & CTR(@5') @2½' Spacing | 18ga | 56¼" | JTR(@4') | ZBar(2x1 1/8-12ga) & CTR(@5') |

Notes

- Joints 1/2 of length or Less DO NOT Require ANY Intermediate Reinforcing.
- Longitudinal Seams to be Snap Lock up to 36" Duct Size and Pittsburgh on All Duct Over 36" (Max 22 gauge on Snaplock).
- All Ductwork Beaded at 12" Spacing (Cross Panel may be used for as a Alternet Paneling for Outside Applications)
- Tie Rods are 3/8 Threaded Rod with Nut/Washer Fastener
- Tie Rods at Joint will have a Maximum Spacing of 60"
- Pressure Leak Test Not Required on Ductwork per/SMCNA Leak Test Section 1.4.2.

Definitions

| | |
|-------------------|---|
| S&D | Flat Slip & Drive Connector (C Rated to 20") |
| SS&D | Standing Slip & Drive Connector (T-11) |
| TDC | Transverse Duct Connector (T25) |
| DM35 | Duct Manufactured Connector (Slip on Flange) |
| JTR | Joint Tie Rod(Qty Required)@Spacing Required |
| CTR | CenterTie Rod(Qty Required)@Spacing Required |
| ZBar | ZBar Reinforcement(Size)@Spacing Required |
| Angle | Angle Reinforcement(Size)@Spacing Required *Can be used in lue of Z-Bar |
| Pittsburgh | Pittsburgh Lock for Longitudinal Seams (L-1) |
| SnapLock | Snap Lock for Longitudinal Seams (L-2) |

Reinforcement Ratings

| | |
|------------|---------------------|
| (H) | 2x1 1/8 x 16ga Zbar |
| (I) | 2x1 1/8 x 12ga Zbar |
| (J) | 2x1 1/8 x 10ga Zbar |
| (K) | 3x1 1/8 x 12ga Zbar |
| (L) | 3x1 1/8 x 10ga Zbar |

References

| | |
|---------------|--|
| SMACNA | 2005 3rd Edition HVAC Duct Construction Standards Metal and Flexible Table [2-3] Rectangular Duct Reinforcement (2 in. wg Static) Table [2-17] 5ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-24] 6ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-31] Transverse Joint Reinforcement Table [2-32] Transverse Joint Reinforcement Figure [2-1] Rectangular Duct/Transverse Joints Figure [2-2] Rectangular Duct/Longitudinal Seams Figure [2-5] Tie Rod Attachments |
| CMC | 2010 California Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |
| UMC | 2010 Uniform Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |

(Up to 4" wg) Supply/Makup/Return Air



Medium Pressure

| Duct Size | Connector | 6' Joints | | | | 5' Joints | | | |
|-----------|-----------|-----------|--------|-------------|---|-----------|--------|-------------|--|
| | | Gauge | Length | Reinforcing | Intermediate Reinforcing | Gauge | Length | Reinforcing | Intermediate Reinforcing |
| 0-12" | TDC | 24ga | 68¼" | - | - | 26ga | 56¼" | - | - |
| to 20" | TDC | 22ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to 30" | TDC | 24ga | 68¼" | - | *CTR | 22ga | 56¼" | - | - |
| to 36" | TDC | 22ga | 68¼" | - | *CTR | 22ga | 56¼" | - | *CTR |
| to 42" | TDC | 22ga | 68¼" | JTR | *CTR | 22ga | 56¼" | JTR | *CTR |
| to 54" | TDC | 20ga | 68¼" | JTR | *CTR | 20ga | 56¼" | JTR | *CTR |
| to 60" | TDC | 20ga | 68¼" | JTR | *CTR(2) | 20ga | 56¼" | JTR | *CTR |
| to 72" | TDC | 18ga | 68¼" | JTR | *CTR(2) | 20ga | 56¼" | JTR | *CTR(2) |
| to 84" | TDC | 18ga | 68¼" | JTR | ZBar(2x1 1/8-12ga) & CTR @2½' Spacing *(4-Sides) | 18ga | 56¼" | JTR | *CTR(2) |
| to 96" | TDC | 18ga | 68¼" | JTR | ZBar(2x1 1/8-12ga) & CTR @2½' Spacing *(4-Sides) | 18ga | 56¼" | JTR | *CTR(2) |
| to 108" | TDC | 18ga | 68¼" | JTR(2) | ZBar(2x1 1/8-12ga) & CTR @2½' Spacing *(4-Sides) | 18ga | 56¼" | JTR(2) | ZBar(2x1 1/8-12ga) & CTR *(4-Sides) |
| to 120" | TDC | 18ga | 68¼" | JTR(2) | ZBar(2x1 1/8-10ga) & CTR @2½' Spacing *(4-Sides) | 18ga | 56¼" | JTR(2) | ZBar(2x1 1/8-10ga) & CTR *(4-Sides) |
| Over-120" | TDC | 18ga | 68¼" | JTR(@4') | ZBar(2x1 1/8-10ga) & CTR(@5') @2½' Spacing *(4-Sides) | 18ga | 56¼" | JTR(@4') | ZBar(2x1 1/8-10ga) & CTR(@5') *(4-Sides) |

Notes

(*) NO Intermediate Tie Rods Used on Short Side when Long side Requires Zbar or Angle (Use Same Size Zbar or Angle & Wrap on 4-Sides of Duct)

1. Joints 1/2 of length or Less DO NOT Require ANY Intermediate Reinforcing.
2. Longitudinal Seams to be Pittsburgh on All Duct.
3. All Ductwork Beaded at 12" Spacing (Cross Panel may be used for as a Alternet Paneling for Outside Applications)
4. Tie Rods are 3/8 Threaded Rod with Nut/Washer Fastener
5. Tie Rods at Joint will have a Maximum Spacing of 60"
6. Non-Harding Sealant shall be used in all Longitudinal Seams.
7. Pressure Leak Test Not Required on Duct up to 3"wg per/SMCNA Leak Test Section 1.4.2.

Definitions

| | |
|-------------------|---|
| TDC | Transverse Duct Connector (T25) |
| DM35 | Duct Manufactured Connector (Slip on Flange) |
| JTR | Joint Tie Rod(Qty Required)@Spacing Required |
| CTR | CenterTie Rod(Qty Required)@Spacing Required |
| ZBar | ZBar Reinforcement(Size)@Spacing Required |
| Angle | Angle Reinforcement(Size)@Spacing Required *Can be used in lue of Z-Bar |
| Pittsburgh | Pittsburgh Lock for Longitudinal Seams (L-1) |

Reinforcement Ratings

| | |
|------------|---------------------|
| (H) | 2x1 1/8 x 16ga Zbar |
| (I) | 2x1 1/8 x 12ga Zbar |
| (J) | 2x1 1/8 x 10ga Zbar |
| (K) | 3x1 1/8 x 12ga Zbar |
| (L) | 3x1 1/8 x 10ga Zbar |

References

| | |
|---------------|--|
| SMACNA | 2005 3rd Edition HVAC Duct Construction Standards Metal and Flexible Table [2-5] Rectangular Duct Reinforcement (4 in. wg Static) Table [2-19] 5ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-26] 6ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-31] Transverse Joint Reinforcement Table [2-32] Transverse Joint Reinforcement Figure [2-1] Rectangular Duct/Transverse Joints Figure [2-2] Rectangular Duct/Longitudinal Seams Figure [2-5] Tie Rod Attachments |
| CMC | 2010 California Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |
| UMC | 2010 Uniform Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |

(Up to 6" wg) Supply/Makup/Return Air



High Pressure

| Duct Size | Connector | 6' Joints | | | | 5' Joints | | | |
|-----------|-----------|-----------|--------|-------------|--|-----------|--------|-------------|--|
| | | Gauge | Length | Reinforcing | Intermediate Reinforcing | Gauge | Length | Reinforcing | Intermediate Reinforcing |
| 0-10" | TDC | 24ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to-12" | TDC | 22ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to 18" | TDC | 24ga | 68¼" | - | *CTR | 22ga | 56¼" | - | - |
| to 24" | TDC | 24ga | 68¼" | - | *CTR | 22ga | 56¼" | - | - |
| to 30" | TDC | 22ga | 68¼" | - | *CTR | 22ga | 56¼" | - | *CTR |
| to 36" | TDC | 20ga | 68¼" | JTR | *CTR | 20ga | 56¼" | - | *CTR |
| to 48" | TDC | 20ga | 68¼" | JTR | *CTR | 20ga | 56¼" | JTR | *CTR |
| to 54" | TDC | 18ga | 68¼" | JTR | *CTR | 20ga | 56¼" | JTR | *CTR |
| to 60" | TDC | 18ga | 68¼" | JTR | *CTR(2) | 20ga | 56¼" | JTR | *CTR |
| to 72" | TDC | 18ga | 68¼" | JTR | ZBar(2x1 1/8-12ga) & CTR @2½' Spacing *(4-Sides) | 18ga | 56¼" | JTR | *CTR |
| to 84" | TDC | 18ga | 68¼" | JTR | ZBar(2x1 1/8-10ga) & CTR @2½' Spacing *(4-Sides) | 18ga | 56¼" | JTR | *CTR(2) |
| to 96" | TDC | 18ga | 68¼" | JTR | ZBar(2x1 1/8-10ga) & CTR @2' Spacing *(4-Sides) | 18ga | 56¼" | JTR | ZBar(2x1 1/8-10ga) & CTR @2' Spacing *(4-Sides) |
| to 108" | TDC | 18ga | 68¼" | JTR(2) | ZBar(2x1 1/8-10ga) & CTR @2' Spacing *(4-Sides) | 18ga | 56¼" | JTR(2) | ZBar(2x1 1/8-10ga) & CTR @2' Spacing *(4-Sides) |
| to 120" | TDC | 18ga | 68¼" | JTR(2) | ZBar(3x1 1/8-12ga) & CTR @2' Spacing *(4-Sides) | 18ga | 56¼" | JTR(2) | ZBar(3x1 1/8-12ga) & CTR @2' Spacing *(4-Sides) |
| Over-120" | TDC | 18ga | 68¼" | JTR(@4') | ZBar(3x1 1/8-12ga) & CTR(@5') @2' Spacing *(4-Sides) | 18ga | 56¼" | JTR(@4') | ZBar(3x1 1/8-12ga) & CTR(@5') @2' Spacing *(4-Sides) |

Notes

(*) NO Intermediate Tie Rods Used on Short Side when Long side Requires Zbar or Angle (Use Same Size Zbar or Angle & Wrap on 4-Sides of Duct)

- Joints 1/2 of length or Less DO NOT Require ANY Intermediate Reinforcing.
- Longitudinal Seams to be Pittsburgh on All Duct.
- All Ductwork Beaded at 12" Spacing (Cross Panel may be used for as a Alternet Paneling for Outside Applications)
- Tie Rods are 3/8 Threaded Rod with Nut/Washer Fastener
- Tie Rods at Joint will have a Maximum Spacing of 60"
- Non-Harding Sealant shall be used in all Longitudinal Seams.

Definitions

| | |
|-------------------|---|
| TDC | Transverse Duct Connector (T25) |
| DM35 | Duct Manufactured Connector (Slip on Flange) |
| JTR | Joint Tie Rod(Qty Required)@Spacing Required |
| CTR | CenterTie Rod(Qty Required)@Spacing Required |
| ZBar | ZBar Reinforcement(Size)@Spacing Required |
| Angle | Angle Reinforcement(Size)@Spacing Required *Can be used in lue of Z-Bar |
| Pittsburgh | Pittsburgh Lock for Longitudinal Seams (L-1) |

Reinforcement Ratings

| | |
|------------|---------------------|
| (H) | 2x1 1/8 x 16ga Zbar |
| (I) | 2x1 1/8 x 12ga Zbar |
| (J) | 2x1 1/8 x 10ga Zbar |
| (K) | 3x1 1/8 x 12ga Zbar |
| (L) | 3x1 1/8 x 10ga Zbar |

References

| | |
|---------------|--|
| SMACNA | 2005 3rd Edition HVAC Duct Construction Standards Metal and Flexible Table [2-6] Rectangular Duct Reinforcement (6 in. wg Static) Table [2-20] 5ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-27] 6ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-31] Transverse Joint Reinforcement Table [2-32] Transverse Joint Reinforcement Figure [2-1] Rectangular Duct/Transverse Joints Figure [2-2] Rectangular Duct/Longitudinal Seams Figure [2-5] Tie Rod Attachments |
| CMC | 2010 California Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |
| UMC | 2010 Uniform Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |

(Up to -2" wg) Exhaust/Fume/Ventilation



(Negative Pressure)

| Duct Size | Connector | 6' Joints | | | | 5' Joints | | | |
|-----------|-----------|-----------|--------|--------------|--|-----------|--------|--------------|-----------------------------------|
| | | Gauge | Length | Joint Reinf. | Intermediate Reinforcing | Gauge | Length | Joint Reinf. | Intermediate Reinforcing |
| 0-20" | S&D | 24ga | 71" | - | - | 26ga | 59" | - | - |
| to 24" | SS&D | 24ga | 71" | - | - | 26ga | 59" | - | - |
| to 26" | TDC | 24ga | 68¼" | - | - | 26ga | 56¼" | - | - |
| to 30" | TDC | 22ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to 36" | TDC | 22ga | 68¼" | - | - | 22ga | 56¼" | - | - |
| to 48" | TDC | 22ga | 68¼" | - | CTR/EMT | 22ga | 56¼" | - | CTR/EMT |
| to 60" | TDC | 22ga | 68¼" | JTR/EMT | CTR/EMT(2) | 22ga | 56¼" | - | CTR/EMT |
| to 72" | TDC | 22ga | 68¼" | JTR/EMT | CTR/EMT(2) | 22ga | 56¼" | JTR/EMT | CTR/EMT |
| to 84" | TDC | 20ga | 68¼" | JTR/EMT | CTR/EMT(2) | 20ga | 56¼" | JTR/EMT | CTR/EMT(2) |
| to 96" | TDC | 18ga | 68¼" | JTR/EMT | CTR/EMT(2) | 20ga | 56¼" | JTR/EMT | CTR/EMT(2) |
| to 108" | TDC | 18ga | 68¼" | JTR/EMT(2) | ZBar(2x1 1/8-12ga) & CTR/EMT | 18ga | 56¼" | JTR/EMT(2) | ZBar(2x1 1/8-12ga) & CTR/EMT |
| to 120" | TDC | 18ga | 68¼" | JTR/EMT(2) | ZBar(2x1 1/8-12ga) & CTR/EMT @2½' Spacing | 18ga | 56¼" | JTR/EMT(2) | ZBar(2x1 1/8-12ga) & CTR/EMT |
| Over-120" | TDC | 18ga | 68¼" | JTR/EMT(@4') | ZBar(2x1 1/8-12ga) & CTR/EMT(@5') @2½' Spacing | 18ga | 56¼" | JTR/EMT(@4') | ZBar(2x1 1/8-12ga) & CTR/EMT(@5') |

Notes

1. Joints 1/2 of length or Less DO NOT Require ANY Intermediate Reinforcing.
2. Longitudinal Seams to be Pittsburgh on All Duct.
3. All Ductwork Beaded at 12" Spacing (Cross Panel may be used for as a Alternet Paneling for Outside Applications)
4. Tie Rods are 3/8 Threaded Rod with Nut/Washer Fastener (Conduit to be Added Over Threaded Rod for Negative Pressure)
5. Tie Rods at Joint will have a Maximum Spacing of 60"
6. Pressure Leak Test Not Required on Ductwork per/SMCNA Leak Test Section 1.4.2.

Definitions

| | |
|-------------------|--|
| TDC | Transverse Duct Connector (T25) |
| DM35 | Duct Manufactured Connector (Slip on Flange) |
| JTR | Joint Tie Rod(Qty Required)@Spacing Required |
| CTR | CenterTie Rod(Qty Required)@Spacing Required |
| ZBar | ZBar Reinforcement(Size)@Spacing Required |
| Angle | Angle Reinforcement(Size)@Spacing Required <i>*Can be used in lue of Z-Bar</i> |
| Pittsburgh | Pittsburgh Lock for Longitudinal Seams (L-1) |

Reinforcement Ratings

| | |
|------------|---------------------|
| (H) | 2x1 1/8 x 16ga Zbar |
| (I) | 2x1 1/8 x 12ga Zbar |
| (J) | 2x1 1/8 x 10ga Zbar |
| (K) | 3x1 1/8 x 12ga Zbar |
| (L) | 3x1 1/8 x 10ga Zbar |

References

| | |
|---------------|---|
| SMACNA | <p>2005 3rd Edition HVAC Duct Construction Standards Metal and Flexible</p> <p>Table [2-3] Rectangular Duct Reinforcement (2 in. wg Static)</p> <p>Table [2-17] 5ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement</p> <p>Table [2-24] 6ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement</p> <p>Table [2-31] Transverse Joint Reinforcement</p> <p>Table [2-32] Transverse Joint Reinforcement</p> <p>Figure [2-1] Rectangular Duct/Transverse Joints</p> <p>Figure [2-2] Rectangular Duct/Longitudinal Seams</p> <p>Figure [2-5] Tie Rod Attachments</p> |
| CMC | <p>2010 California Mechanical Code</p> <p>(Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards</p> |
| UMC | <p>2010 Uniform Mechanical Code</p> <p>(Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards</p> |

(Up to -4" wg) Exhaust/Fume/Ventilation



(Negative Pressure)

| Duct Size | Connector | 6' Joints | | | | 5' Joints | | | |
|-----------|-----------|-----------|--------|--------------|--|-----------|--------|--------------|-----------------------------------|
| | | Gauge | Length | Joint Reinf. | Intermediate Reinforcing | Gauge | Length | Joint Reinf. | Intermediate Reinforcing |
| 0-12" | TDC | 24ga | 68¼" | - | - | 26ga | 56¼" | - | - |
| to 20" | TDC | 22ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to 30" | TDC | 24ga | 68¼" | - | CTR/EMT | 22ga | 56¼" | - | - |
| to 36" | TDC | 22ga | 68¼" | - | CTR/EMT | 22ga | 56¼" | - | CTR/EMT |
| to 42" | TDC | 22ga | 68¼" | JTR/EMT | CTR/EMT | 22ga | 56¼" | JTR/EMT | CTR/EMT |
| to 54" | TDC | 20ga | 68¼" | JTR/EMT | CTR/EMT | 20ga | 56¼" | JTR/EMT | CTR/EMT |
| to 60" | TDC | 20ga | 68¼" | JTR/EMT | CTR/EMT(2) | 20ga | 56¼" | JTR/EMT | CTR/EMT |
| to 72" | TDC | 18ga | 68¼" | JTR/EMT | CTR/EMT(2) | 20ga | 56¼" | JTR/EMT | CTR/EMT(2) |
| to 84" | TDC | 18ga | 68¼" | JTR/EMT | ZBar(2x1 1/8-12ga) & CTR/EMT @2½' Spacing | 18ga | 56¼" | JTR/EMT | CTR/EMT(2) |
| to 96" | TDC | 18ga | 68¼" | JTR/EMT | ZBar(2x1 1/8-12ga) & CTR/EMT @2½' Spacing | 18ga | 56¼" | JTR/EMT | CTR/EMT(2) |
| to 108" | TDC | 18ga | 68¼" | JTR/EMT(2) | ZBar(2x1 1/8-12ga) & CTR/EMT @2½' Spacing | 18ga | 56¼" | JTR/EMT(2) | ZBar(2x1 1/8-12ga) & CTR/EMT |
| to 120" | TDC | 18ga | 68¼" | JTR/EMT(2) | ZBar(2x1 1/8-10ga) & CTR/EMT @2½' Spacing | 18ga | 56¼" | JTR/EMT(2) | ZBar(2x1 1/8-10ga) & CTR/EMT |
| Over-120" | TDC | 18ga | 68¼" | JTR/EMT(@4') | ZBar(2x1 1/8-10ga) & CTR/EMT(@5') @2½' Spacing | 18ga | 56¼" | JTR/EMT(@4') | ZBar(2x1 1/8-10ga) & CTR/EMT(@5') |

Notes

1. Joints 1/2 of length or Less DO NOT Require ANY Intermediate Reinforcing.
2. Longitudinal Seams to be Pittsburgh on All Duct.
3. All Ductwork Beaded at 12" Spacing (Cross Panel may be used for as a Alternet Paneling for Outside Applications)
4. Tie Rods are 3/8 Threaded Rod with Nut/Washer Fastener (Conduit to be Added Over Threaded Rod for Negative Pressure)
5. Tie Rods at Joint will have a Maximum Spacing of 60"
7. Pressure Leak Test Not Required on Duct up to 3"wg per/SMCNA Leak Test Section 1.4.2.

Definitions

| | |
|-------------------|---|
| TDC | Transverse Duct Connector (T25) |
| DM35 | Duct Manufactured Connector (Slip on Flange) |
| JTR | Joint Tie Rod(Qty Required)@Spacing Required |
| CTR | CenterTie Rod(Qty Required)@Spacing Required |
| ZBar | ZBar Reinforcement(Size)@Spacing Required |
| Angle | Angle Reinforcement(Size)@Spacing Required *Can be used in lue of Z-Bar |
| Pittsburgh | Pittsburgh Lock for Longitudinal Seams (L-1) |

Reinforcement Ratings

| | |
|------------|---------------------|
| (H) | 2x1 1/8 x 16ga Zbar |
| (I) | 2x1 1/8 x 12ga Zbar |
| (J) | 2x1 1/8 x 10ga Zbar |
| (K) | 3x1 1/8 x 12ga Zbar |
| (L) | 3x1 1/8 x 10ga Zbar |

References

| | |
|---------------|--|
| SMACNA | 2005 3rd Edition HVAC Duct Construction Standards Metal and Flexible Table [2-5] Rectangular Duct Reinforcement (4 in. wg Static) Table [2-19] 5ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-26] 6ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-31] Transverse Joint Reinforcement Table [2-32] Transverse Joint Reinforcement Figure [2-1] Rectangular Duct/Transverse Joints Figure [2-2] Rectangular Duct/Longitudinal Seams Figure [2-5] Tie Rod Attachments |
| CMC | 2010 California Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |
| UMC | 2010 Uniform Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |

(Up to -6" wg) Exhaust/Fume/Ventilation



(Negative Pressure)

| Duct Size | Connector | 6' Joints | | | | 5' Joints | | | |
|-----------|-----------|-----------|--------|--------------|---|-----------|--------|--------------|---|
| | | Gauge | Length | Joint Reinf. | Intermediate Reinforcing | Gauge | Length | Joint Reinf. | Intermediate Reinforcing |
| 0-10" | TDC | 24ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to-12" | TDC | 22ga | 68¼" | - | - | 24ga | 56¼" | - | - |
| to 18" | TDC | 24ga | 68¼" | - | CTR/EMT | 22ga | 56¼" | - | - |
| to 24" | TDC | 24ga | 68¼" | - | CTR/EMT | 22ga | 56¼" | - | - |
| to 30" | TDC | 22ga | 68¼" | - | CTR/EMT | 22ga | 56¼" | - | CTR/EMT |
| to 36" | TDC | 20ga | 68¼" | JTR/EMT | CTR/EMT | 20ga | 56¼" | - | CTR/EMT |
| to 48" | TDC | 20ga | 68¼" | JTR/EMT | CTR/EMT | 20ga | 56¼" | JTR/EMT | CTR/EMT |
| to 54" | TDC | 18ga | 68¼" | JTR/EMT | CTR/EMT | 20ga | 56¼" | JTR/EMT | CTR/EMT |
| to 60" | TDC | 18ga | 68¼" | JTR/EMT | CTR/EMT(2) | 20ga | 56¼" | JTR/EMT | CTR/EMT |
| to 72" | TDC | 18ga | 68¼" | JTR/EMT | ZBar(2x1 1/8-12ga) & CTR/EMT @2½' Spacing | 18ga | 56¼" | JTR/EMT | CTR/EMT |
| to 84" | TDC | 18ga | 68¼" | JTR/EMT | ZBar(2x1 1/8-10ga) & CTR/EMT @2½' Spacing | 18ga | 56¼" | JTR/EMT | CTR/EMT(2) |
| to 96" | TDC | 18ga | 68¼" | JTR/EMT | ZBar(2x1 1/8-10ga) & CTR/EMT @2' Spacing | 18ga | 56¼" | JTR/EMT | ZBar(2x1 1/8-10ga) & CTR/EMT @2' Spacing |
| to 108" | TDC | 18ga | 68¼" | JTR/EMT(2) | ZBar(2x1 1/8-10ga) & CTR/EMT @2' Spacing | 18ga | 56¼" | JTR/EMT(2) | ZBar(2x1 1/8-10ga) & CTR/EMT @2' Spacing |
| to 120" | TDC | 18ga | 68¼" | JTR/EMT(2) | ZBar(3x1 1/8-12ga) & CTR/EMT @2' Spacing | 18ga | 56¼" | JTR/EMT(2) | ZBar(3x1 1/8-12ga) & CTR/EMT @2' Spacing |
| Over-120" | TDC | 18ga | 68¼" | JTR/EMT(@4') | ZBar(3x1 1/8-12ga) & CTR/EMT(@5') @2' Spacing | 18ga | 56¼" | JTR/EMT(@4') | ZBar(3x1 1/8-12ga) & CTR/EMT(@5') @2' Spacing |

Notes

1. Joints 1/2 of length or Less DO NOT Require ANY Intermediate Reinforcing.
2. Longitudinal Seams to be Pittsburgh on All Duct.
3. All Ductwork Beaded at 12" Spacing (Cross Panel may be used for as a Alternet Paneling for Outside Applications)
4. Tie Rods are 3/8 Threaded Rod with Nut/Washer Fastener (Conduit to be Added Over Threaded Rod for Negative Pressure)
5. Tie Rods at Joint will have a Maximum Spacing of 60"

Definitions

| | |
|-------------------|--|
| TDC | Transverse Duct Connector (T25) |
| DM35 | Duct Manufactured Connector (Slip on Flange) |
| JTR | Joint Tie Rod(Qty Required)@Spacing Required |
| CTR | CenterTie Rod(Qty Required)@Spacing Required |
| ZBar | ZBar Reinforcement(Size)@Spacing Required |
| Angle | Angle Reinforcement(Size)@Spacing Required <i>*Can be used in lue of Z-Bar</i> |
| Pittsburgh | Pittsburgh Lock for Longitudinal Seams (L-1) |

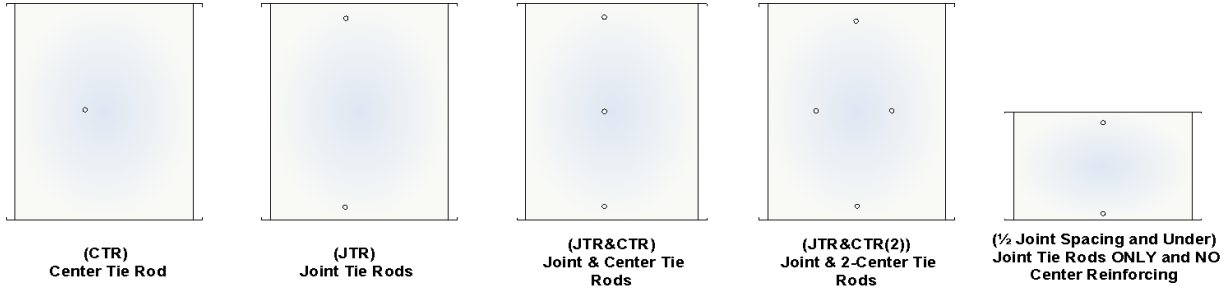
Reinforcement Ratings

| | |
|------------|---------------------|
| (H) | 2x1 1/8 x 16ga Zbar |
| (I) | 2x1 1/8 x 12ga Zbar |
| (J) | 2x1 1/8 x 10ga Zbar |
| (K) | 3x1 1/8 x 12ga Zbar |
| (L) | 3x1 1/8 x 10ga Zbar |

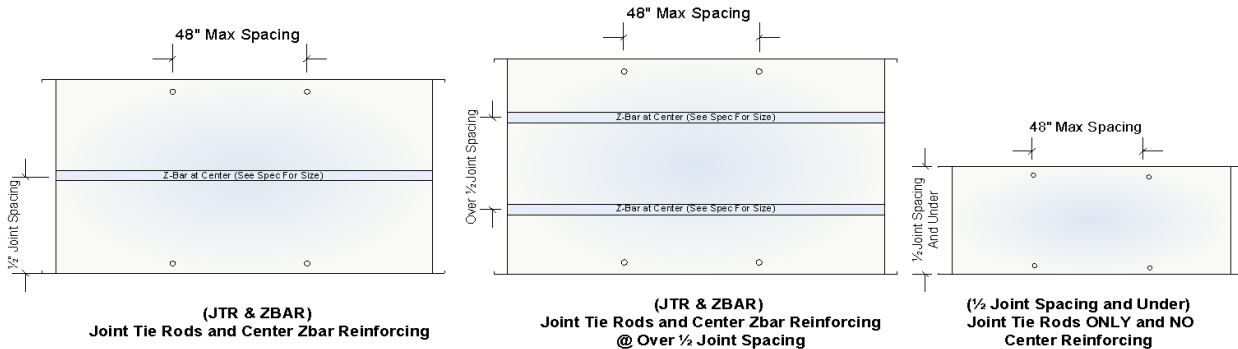
References

| | |
|---------------|--|
| SMACNA | 2005 3rd Edition HVAC Duct Construction Standards Metal and Flexible Table [2-6] Rectangular Duct Reinforcement (6 in. wg Static) Table [2-20] 5ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-27] 6ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement Table [2-31] Transverse Joint Reinforcement Table [2-32] Transverse Joint Reinforcement Figure [2-1] Rectangular Duct/Transverse Joints Figure [2-2] Rectangular Duct/Longitudinal Seams Figure [2-5] Tie Rod Attachments |
| CMC | 2010 California Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |
| UMC | 2010 Uniform Mechanical Code (Appendix A), Reference to SMACNA 2005 3rd Edition HVAC Duct Construction Standards |

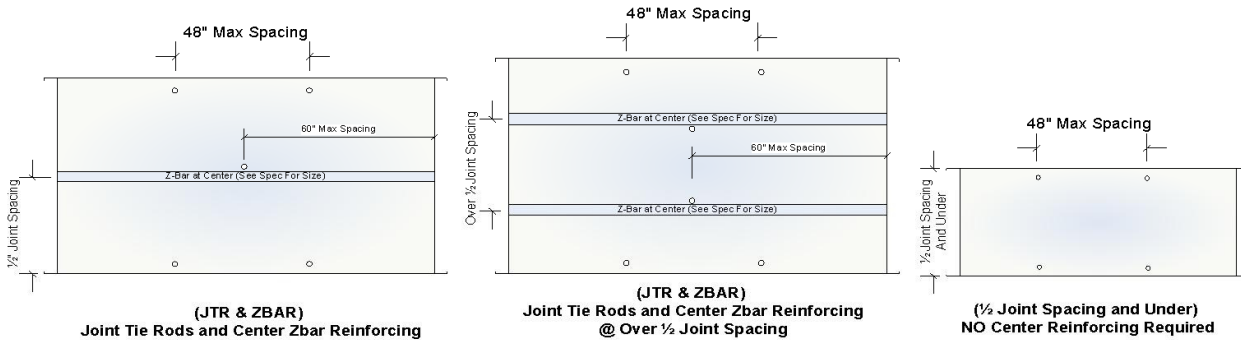
Duct with Tie Rods ONLY



Duct with Joint Tie Rod and Center Reinforcing ONLY



Duct with Joint Tie Rod and Center Reinforcing and Tie Rods



Tierod and Z-Bar Details

