

400-G-7 (continued)

E. Flush Inset with Face Frame

Doors (1, 2) and drawer faces (3) are inset next to face frames or face members (4) on the cabinet. Finished end and scribe details vary with the manufacturer and the QSI Grade specified for the project by the design professional. Gaps between the case and the doors or drawers are often dictated by the operating clearances of the fittings.

With this style of construction, all door and drawer faces are flush with the face of the cabinet. This style is highly functional and allows the use of different thicknesses of door and drawer fronts.

Conventional as well as concealed hinges are available for a variety of door thicknesses. The choice of case and door/drawer material influence the choice of hinges. Conventional butt hinges should be avoided when hinge screws would be attached to the edge-grain of panel products.

This is generally the most expensive of the four styles shown in this publication due to the increased care necessary in the fitting and aligning of the doors and drawers, in addition to the cost of providing the face frame.

This style does not lend itself to the economical use of plastic laminate covering.

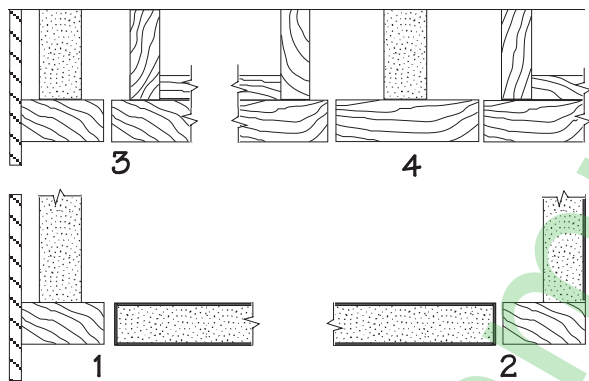
Scribes and Fillers

Small extensions or elements added to the bottoms, sides, or tops of cabinets where they meet the walls or other cabinets are permitted in all cabinet styles as follows:

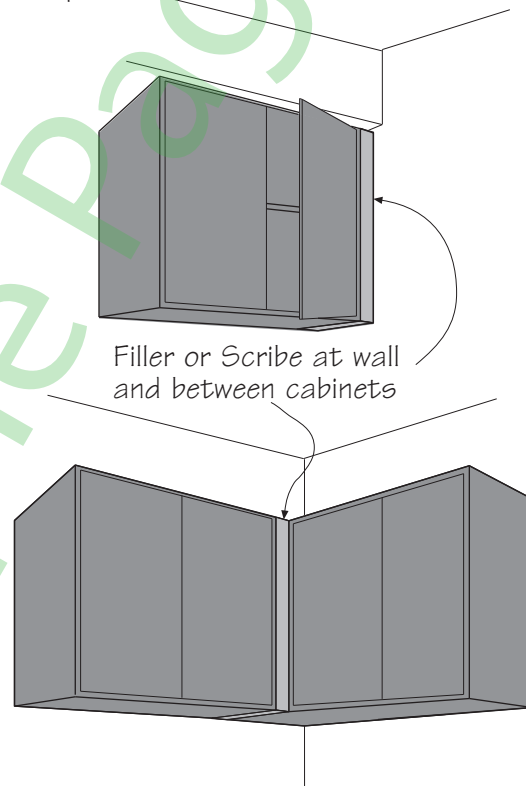
- Minimum dimension exposed - 19 mm [$\frac{3}{4}$ "] all grades
- Maximum dimension exposed, Premium Grade - 38 mm [$1\frac{1}{2}$ "], except when 76 mm [3"] is needed at a 90° corner to clear hardware.
- Maximum dimension exposed, Custom and Economy Grades - 76 mm [3"]

Top and bottom fillers and corner panels are required in Premium Grade, but optional for Custom Grade.

400



Plan Section - Flush Inset (Frame) - Figure 400-07



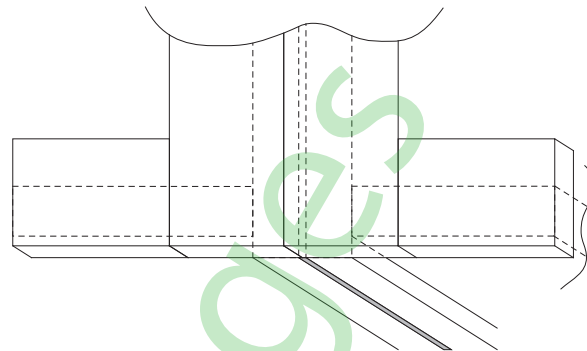
Fillers - Figure 400-08

400-G-7 (continued)



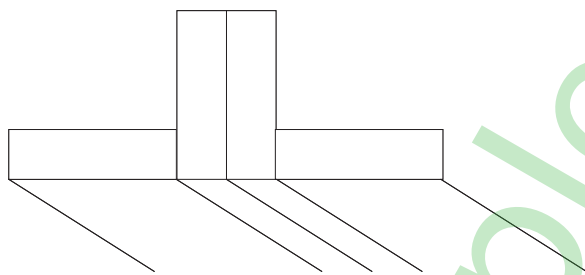
NOTE: The selection of joinery for the underside of typical wall cabinets is the option of the manufacturer in the absence of specifications. Design professionals shall consult with manufacturers early in the design process for suggestions and solutions. When a particular style is required it shall be specified.

NOTE: Traditional face frame cabinets will often be built so the frame extends beyond the vertical edge of the case body. This allows the cabinets to be fastened to each other through the edges of the frames. The resulting joint is very tight and smooth. A small gap between cases, 6 mm [1/4"] or less, is visible on the underside, and is acceptable for this style cabinet.

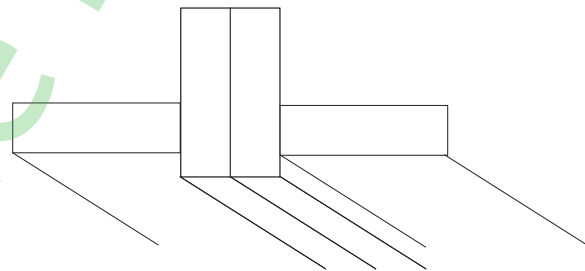


Underside of wall cabinets:
Traditional face frame type

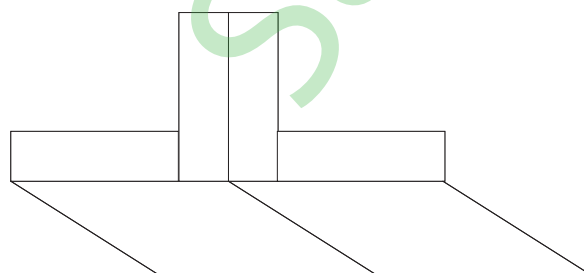
400



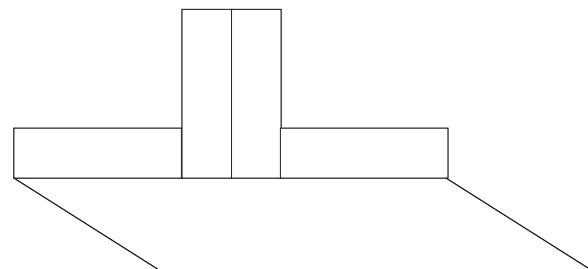
Underside of wall cabinets: Type "A" flush
Each element clad/finished individually



Underside of wall cabinets: Type "A" reveal
Each element clad/finished individually



Underside of wall cabinets: Type "B" flush
Each cabinet clad/finished individually



Underside of wall cabinets: Type "C" flush
Underside clad/finished after assembly

Wall Cabinet Bottom Finish Conditions - Figure 400-09

400-G-8

Minimum Nominal Thickness and Material for Cabinet Components (other than doors)

These general minimums apply to all 400A and 400B cabinet standards. In the absence of specifications, or specific criteria in these standards, the following standards will apply. Where more than one method or material is listed, AWI/AWMAC woodworkers will supply their choice from the alternatives.

| Cabinet Components | Materials | Minimum Nominal Thickness |
|--|---|--|
| Body Members - (ends [gables], divisions, fixed shelves, bottoms, tops) | Panel product | 19 mm [³ / ₄ "] |
| Face Frames, Rails, Toe Kicks, Cab. Bases | Lumber or Panel product | 19 mm [³ / ₄ "] |
| Adjustable Shelves - Consult your woodwork manufacturer during the design phase for engineering suggestions to minimize deflection of heavily loaded shelves or long spans. No shelf in conventional base or wall cabinets at these dimensions shall be expected to carry over 23 kg [50 lbs.] per square foot total distributed load. | Lumber | 19 mm [³ / ₄ "] for spans up to 915 mm [36"] 27 mm [1- ¹ / ₁₆ "] for spans up to 1220 mm [48"] |
| | Veneer Core Plywood | 19 mm [³ / ₄ "] for spans up to 915 mm [36"] 27 mm [1- ¹ / ₁₆ "] for spans up to 1220 mm [48"] |
| | Medium Density Particleboard or Medium Density Fiberboard | 19 mm [³ / ₄ "] for spans up to 813 mm [32"] 25.4 mm [1"] for spans up to 1067 mm [42"] |
| Backs | Panel Product | 6.4 mm [¹ / ₄ "] |
| Mounting or hanger strips | Lumber or Panel Product | 12.7 mm [¹ / ₂ "] |
| Drawer sides, backs, and subfronts | Lumber or Panel Product | 12.7 mm [¹ / ₂ "] |
| Drawer bottoms | Panel Product | 6.4 mm [¹ / ₄ "] |
| Drawer fronts | Lumber or Panel Product | 19 mm [³ / ₄ "] |
| Stile and rail cabinet door and drawer thickness - 19 mm [³ / ₄ "] minimum nominal thickness. Special consideration should be given to building very wide and/or very tall doors of this thickness. Consult your manufacturer for guidelines." | | |
| Glass doors - Frames: 19 mm [³ / ₄ "] minimum nominal thickness, glass to meet local code. Frameless glass: 6.4 mm [¹ / ₄ "] nominal thickness. | | |
| Flush cabinet door limits - 19 mm [³ / ₄ "] medium density particleboard or medium density fiberboard core up to 762 mm [30"] width by 2032 mm [80"] height, with like materials and thicknesses both faces. Veneer core doors will not be guaranteed against warping, telegraphing, or delamination. Larger doors require special design, engineering, and fabrication. Design teams and manufacturers shall work together to develop sound solutions. | | |



Shelf Deflection Information

The Department of Wood Science in the Division of Forestry at West Virginia University conducted a study for the Architectural Woodwork Institute regarding the deflection of wood shelving materials under various amount of stress. The following table represents their findings with the various products tested.

The table shows total uniformly distributed load requirements necessary to cause deflection of ¹/₄ inch in shelves 8 and 12 inches wide with spans (i.e. unfixd, supported at each end) of 30, 36, 42, and 48 inches. Load required to deflect shelves more or less than ¹/₄ inch may be estimated by direct proportion.

For example, the uniformly distributed load required to cause a deflection of ¹/₈ inch is one-half that of the value in the table. For width different than 8 or 12 inches (the values used in the table), load required to cause a ¹/₄ inch deflection may also be determined by direct proportion. A 6 inch wide shelf, for example, will deflect twice as much as a 12 inch wide shelf under the same load.

The following equation shows how deflection is related to shelf dimensions, width, thickness, span, load per inch of span and E-value, a material property which measures stiffness or resistance to deflection. The higher the E-value the less the deflection. When a shelf is made with several materials, each with its own E-value, a composite E-value must be determined. The study was developed in the inch-pound method and is not converted to metric for this example.

To compute deflection:

$$D = \frac{0.1563wl^4}{Ebh^3}$$

In which the values are:

D = deflection (in inches)

w = load per lineal inch of span

l = span (length)

E = modulus of elasticity

b = base (width)

h = depth (thickness)

Shelf Deflection of 1/4" by Estimated Total Distributed Load in Pounds

| Material | Thickness | Span | | 30" | | 36" | | 42" | | 48" | |
|---|-------------|---------|------|------|------|------|------|------|------|------|--|
| | | Width | 8" | 12" | 8" | 12" | 8" | 12" | 8" | 12" | |
| Yellow-Poplar | lumber | 3/4" | 322 | 483 | 189 | 284 | 117 | 175 | 78 | 117 | |
| Red Gum | | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | |
| Sweet Gum | | 1-1/16" | 912 | 1368 | 528 | 790 | 332 | 498 | 221 | 332 | |
| Hard Maple | lumber | 3/4" | 356 | 534 | 209 | 313 | 133 | 206 | 88 | 133 | |
| Pecan | | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | |
| Red Oak | | 1-1/16" | 1021 | 1536 | 592 | 888 | 373 | 560 | 249 | 374 | |
| Birch | lumber | 3/4" | 400 | 600 | 232 | 348 | 146 | 219 | 98 | 146 | |
| Hickory | | 1-1/16" | 1134 | 1701 | 660 | 990 | 414 | 621 | 277 | 415 | |
| Medium density particleboard (raw or covered with "melamine") | 3/4" | 78 | 117 | 46 | 69 | 29 | 43 | 19 | 28 | | |
| | 1" | 185 | 277 | 109 | 164 | 69 | 102 | 45 | 66 | | |
| Medium density fiberboard (raw or covered with "melamine") | 3/4" | 100 | 150 | 58 | 87 | 36 | 54 | 25 | 38 | | |
| | 1" | 237 | 356 | 137 | 206 | 85 | 128 | 59 | 90 | | |
| Birch faced plywood, veneer core | 3/4" | 145 | 218 | 86 | 129 | 54 | 81 | 36 | 54 | | |
| Birch faced plywood, medium density particleboard core | 3/4" | 125 | 188 | 72 | 109 | 46 | 68 | 31 | 46 | | |
| Medium density particleboard covered two sides and one edge with nominal 0.028" high pressure decorative laminate | 3/4" (core) | 174 | 261 | 100 | 139 | 64 | 96 | 42 | 63 | | |
| Medium density particleboard covered two sides and one edge with nominal 0.050" high pressure decorative laminate | 3/4" (core) | 234 | 350 | 137 | 205 | 86 | 129 | 58 | 87 | | |
| Medium density particleboard with 1/8" solid lumber edge | 3/4" | 89 | 139 | 53 | 79 | 33 | 50 | 22 | 33 | | |
| Medium density particleboard with 3/4" solid lumber edge | 3/4" | 100 | 150 | 60 | 90 | 42 | 63 | 25 | 38 | | |
| Medium density particleboard with 3/4" x 1-1/2" solid lumber dropped edge | 3/4" | 384 | 435 | 216 | 241 | 132 | 152 | 92 | 107 | | |

NOTE: All medium density particleboard is ANSI 208.1-1998 Type M-2. The information and ratings stated here pertain to material currently offered and represent results of tests believed to be reliable. However, due to variations in handling and in methods not known or under our control, neither the AWI nor the AWMAC can make any warranties or guarantees as to end results.

400-G-9

Casework Standard Dimensions

The casework dimensions given here represent long-established standard dimensions of the casework industry. They are intended for use as guidelines only. The design professional shall specify interior minimum or maximum dimensions if these are critical for the use intended. Because "architectural casework" is by definition custom designed and manufactured, any and all of the dimensions given here can be changed to suit special design considerations. (Dimensions are in inches.)

Good design involves the proper specification of materials, their thickness, and support to meet load requirements, not to exceed 90 kg [± 200 lbs.] on any one shelf in any case. Realistic industry standards rarely exceed 23 kg [± 50 lbs.] per square foot.

The ADA guidelines are just that, *guidelines*, and do not constitute legal advice. For complete information, design professionals shall consult a reprint of the U.S. Department of Justice *28 Code of Federal Regulations Part 36, Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities*, latest edition, and specify accordingly. Guidelines may vary for work in Canada. Consult the *National Building Code of Canada*, latest edition, for complete information.

Standard Cabinets

ADA Compliant Guidelines
See Appendix and 28 CFR Part 36

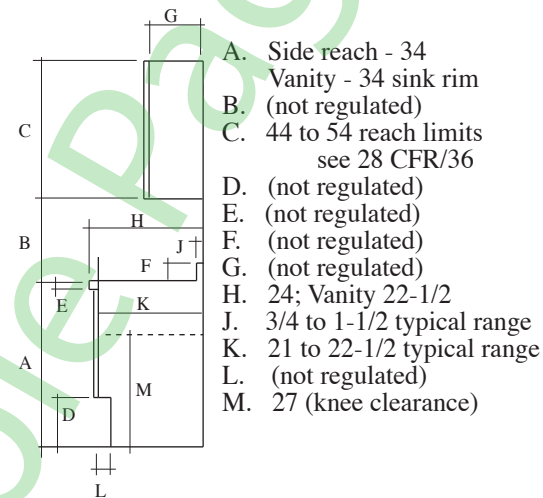
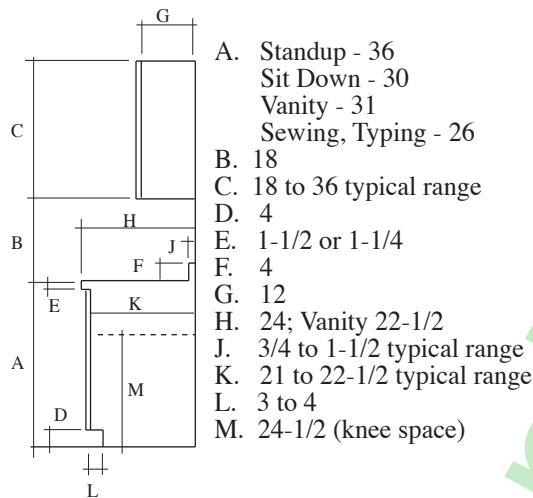
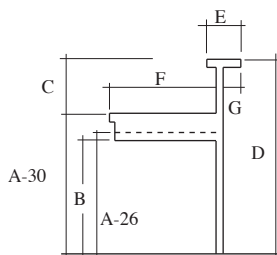
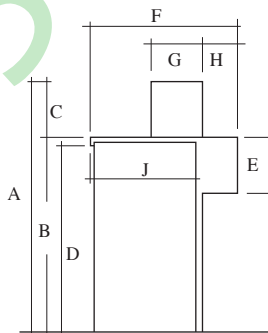


Figure 400-10

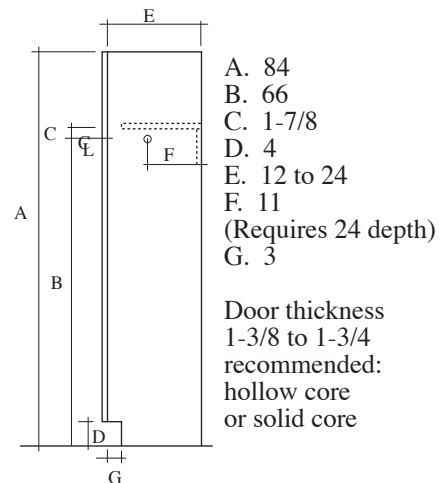
- A. 30 Sit down; 26 Typing
- B. 24-1/2
- C. 12
- D. 42 - ADA 34 cutaway
- E. 8
- F. 24
- G. 4
- A. 50 to 54
- B. 40 to 42
- C. 12
- D. 38-1/2 to 40-1/2
- E. Optional
- F. 32 to 24
- G. 12
- H. 8
- J. 24



Reception counter



Teller counter



Tall cabinets

Figure 400-11