

## SPECIFICATIONS FOR TABS WALL SYSTEMS

### SECTION 04245 BRICK PANEL SYSTEMS

#### PART I - GENERAL

##### 1.1 RELATED DOCUMENTS

Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 general requirements apply to this section.

##### 1.2 SUMMARY

This specification document is designed to provide architects and specifiers with information concerning the TABS Wall System, through the outline of materials, construction details, and product dimensions.

This section contains information that may be required during the specification process. Information can also be useful as a continuing reference to owner.

Related Work: (Select as Required)

Design Information Concrete	Section 03001
Fiber Reinforced Concrete	Section 03240
Tool Driven Concrete Fasteners	Section 03275
Pre-Cast Concrete	Section 03400
Lift-Slab/Tilt-Up Construction	Section 03470
Closures and Setting Accessories for Concrete	Section 03490
Design Information Masonry	Section 04001
Mortar and Masonry Grout	Section 04100
Unit Masonry	Section 04200
Concrete Unit Masonry	Section 04220
Reinforced Unit Masonry	Section 04230
Stone	Section 04400
Granite	Section 04465
Masonry Restoration and Cleaning	Section 04500
Simulated Stone	Section 05050
Structural Metal Framing	Section 05100
Structural Framing Systems	Section 05160
Cold Formed Metal Framing	Section 05400
Expansion Control	Section 05800
Laminated and Processed Sheets	Section 06118
Structural Plywood	Section 06122
Fiber Wood Sheets and Decking	Section 06124
Composite Wood/Metal Framing	Section 06150
Design Information Thermal and Moisture Protection	Section 07001
Waterproofing and Damp Proofing	Section 07100
Sheet Membrane Waterproofing	Section 07110
Damp Proofing	Section 07150
Water Repellent Materials	Section 07180
Vapor Retarder's	Section 07190
Weather Infiltration Barriers	Section 07195
Insulation	Section 07200

Fireproofing	Section 07250
Fire stopping	Section 07270
Pre-Formed Flashing	Section 07645
Flexible Flashing	Section 07650
Joint Fillers and Gaskets	Section 07910
Sealants, Caulking and Seals	Section 07920
Non-Load Bearing Wall Framing	Section 09110
Metal Furring and Accessories	Section 09206
Gypsum Board	Section 09250
Gypsum Fabricators	Section 09290
Tile	Section 09300
Ceramic Tile	Section 09310
Quarry Tile	Section 09330
Pre-Engineered Structures	Section 13120
Metal Budding Systems	Section 13122
Portable and Mobile Buildings	Section 13124
Pre-Engineered Wood Component Systems	Section 13136
Pre-Engineered Parking Structures	Section 13136
Pre-Fabricated Residential Structures	Section 13144

### 1.3 SCOPE OF WORK

Include all labor, materials and appliances, and perform all operations in connection with the installation of the TABS Wall System and all related work, in strict accordance with drawings, and as specified herein.

Dimensions are nominal and specifications are based on the latest product information available at time of publication. TABS Wall System reserves the right to make changes in its product at any time without notice.

Products to be considered equal to those specified must be approved in writing by the architect, engineer, or specifier ten (10) days prior to the project bid date.

### 1.4 SUBMITTALS

Provide veneer samples in small-scale form for initial selection purposes showing range of colors, textures, and patterns for each type of thin veneer.

Supply drawing details for window and door openings, joint conditions and wall flashings.

Certified Lab Test Reports, Fire Rating, System Flammability, Wind Load with Engineering Report and Shear Strength. - Meeting section 1405.9 of the ICC Building Code.

### 1.5 QUALITY ASSURANCE

Appoint at least one supervisory journeyman who shall be present at all times during execution of work, who shall be thoroughly familiar with design requirement, type of materials being installed, reference standards, and other requirements, and who shall direct all work performed at job site.

**Applicator contractor shall be TABS Wall System certified and/or have at least three (3) years experience in the installation of panel systems.**

Comply with all applicable codes, regulations, and standards. If provision of applicable codes, regulations, and standards conflict with these requirements in this section, the more demanding shall govern.

TABS Wall System component parts meet ICC Building Code guidelines .

1.6 PERFORMANCE CHARACTERISTICS {SELECT AS REQUIRED}

Assembled wall envelope with/or finish shall meet or comply with the following performance standards when tested in accordance with the following methods:

**ASTM E-84-89a** SURFACE BURNING TEST

Test Results: Class I non-combustible wall cladding .

**ASTM E-1 19-88** FIRE RESISTANCE TEST

Test Results: Certified fire endurance rating of 2 hours.

**ASTM E-72-80** WINDLOAD STRUCTURAL TESTING

Test Results: Positive load 353 per square foot, Negative load 254 per square foot.

System Test Results E-84, E-119, and E-72 are listed with code approved agency.

**ASTM C-297** TENSILE BOND STRENGTH TEST OF MASTIC

Test Results: Tensile bond strength averaged 197 per square inch

**ASTM C-297-99** SHEAR BOND STRENGTH TEST OF MASTIC

Test Results: Average tensile strength over 10.5 kg/cm<sup>2</sup> (100 PSI) was achieved.

Test Results: Average shear strength was 73kg/m<sup>2</sup> (100 PSI) of thin brick surface area, without being mortared.

System components shall meet or exceed the following performance standards when tested in accordance with the following methods:

**IBC requirement per paragraph 1405.9.1 for veneer surface shear value.**

Test Results: Using amount specified per installation manual, adhered veneer met 50 lb. per square inch of surface area test result was 180 per square inch.

**ASTM B-117** SALT SPRAY EXPOSURE

Test Results: With 1000 hours of exposure, no corrosion was observed.

**ASTM-D-1037** NAIL-HEAD PULL THROUGH

Test Results: Average 265 pounds - fasteners did not pull through, sheet metal bent.

**ASTM D-1037-89** FASTENER PULL-THROUGH RESISTANCE TEST

Test Results: Average pull over load was over 160 kg (350 lbs.) per fastener.

**ASTM C-1088** THIN VENEER BRICK TEST

Test Results: Thin brick specified passes exterior grade requirements, meets size and tolerance ranges, passes 50 cycles of freezing/thawing and classifies as TBS, TBX, or TBA (standard, select, or architectural.)

**ANSI A 137.1** AMERICAN NATIONAL STANDARD SPECIFICATION FOR CERAMIC TILE

Test Results: Approved tile passes requirements for quarry or paver tile, glazed or unglazed, vitreous or semi-vitreous for most TABS Wall System application.

**ASTM C-270** STANDARD SPECIFICATION MORTAR FOR UNIT MASONRY

Test Results: Mortar proportion meets specification for S-Grade mortar mix and for minimum property specifications shear adhesion of 250 psi, tensile strength of 250 psi compression strength of 3500 psi and flexible strength of 900 psi.

**ASTM C-557** ADHESIVE

Test Results: Mastic retains minimum shear and tensile values after 500-hour aging, freeze/thaw cycling with a 10mm (3/8") bridge gap between materials.

**AFG-01** MASTIC

Test Results: Strength under and over freezing and wet was higher than 14kg/cm<sup>2</sup> (150 PSI). Mastic durability to moisture and oxidation or aging passed test 100% with strength value higher than 18 kg/cm<sup>2</sup> (150 PSI). Mastic is not affected by moisture, freeze/thaw cycling or oxidation even with a 3.5mm (1/16") thick glue line.

**ASTM A-395** STEEL PANEL (STRUCTURAL, PHYSICAL QUALITIES) (CHEMICAL, MECHANICAL, STRESS TEST, COATING BEND TEST)

Test Results: Panel passes chemical, stress, coating bend, and mechanical requirements with a yield higher than 2320 kg/cm<sup>2</sup> (33,000 PSI) and tensile strength over 3160 kg/cm<sup>2</sup> (45,000 PSI).

**ASTM A-653** PANEL (REQUIREMENTS FOR HOT-DIP, ZINC-COATED STEEL SHEET)

Test Results: Panel passes testing and coating requirements for a minimum spangle G-90 classification.

1.7 DELIVERY, STORAGE AND HANDLING

Deliver materials to project sites in their original factory wrappings and containers, clearly labeled with identification of manufacturer, brand name, fire hazard classification, and lot number. Store materials in original undamaged packages and containers, inside a well ventilated area protected from weather, moisture, soiling, extreme temperatures and humidity, laid flat and blocked off-ground to prevent sagging and warping.

Comply with the instructions and recommendations of manufacturer for special delivery, storage and handling requirements.

## 1.8 SEQUENCING AND SCHEDULING

Sequence TABS Wall System installation with other work to minimize the possibility of damage during the construction period.

## 1.9 WARRENTY

Tabs Wall Systems LLC (TABS II) Warrants to the original Buyer that the goods will be free from defects in material and manufacturer's workmanship for a period of twenty (20) years from the date of original delivery. In the event that the goods are not installed or maintained in accordance with the TABS II specifications, are modified or are damaged by accident, unreasonable use, improper maintenance or neglect, this Warranty shall become void. For the purpose of this Warranty, a defective item is an item that is found by TABS II to have been defective in materials or workmanship if the defect materially impairs the value of the goods to the Buyer.

TABS II shall have no obligation or liability under this Warranty for claims arising from any other parties (including Buyer's) negligence or misuse of the goods, the installation of the goods in any area subject to fallout or exposure to corrosive chemicals, ash, liquids, fumes or vapors, or in any area in which the environment changes from normal to corrosive atmosphere. This Warranty does not apply to any claim or damage arising from or caused by improper storage, handling, installation, maintenance or from fire, floods, accidents, structural defects, building settlement or movements, acts of God or other causes beyond TABS II control.

Buyer must give notice of any alleged defect in the goods to TABS II within 30 days after discovery of the defect by Buyer. If notice is not given within such period, any claim for breach of Warranty shall be conclusively deemed to have been waived, and TABS II shall not be liable under this Warranty. TABS II or its agents shall be entitled to examine the goods. TABS II shall have the option of requiring the return of the defective goods, transportation prepaid, to establish the claim. The acceptance by TABS II of any goods returned shall not be deemed as admission that the goods are defective or in breach of any warranty, and if TABS II determines that the goods are not defective, the material shall be reshipped to the Buyer at Buyer's expense. No product will be returned to TABS II without its written consent.

**TABS II Makes No Warranty As To Any Goods Not Manufactured By TABS II. The Terms And Duration Of Warranties Of Such Goods, If Any, Will Be Specified By Their Manufacturers. The Warranties Herein Are In Lieu Of All Warranties, Express, Implied, Statutory Or Otherwise. In Particular, TABS II Makes No Warranty Of Merchantability Or Fitness For A Particular Purpose As To Any Goods Sold Under The Agreement.**

Any action for breach of the Warranty must be commenced within one year from the occurrence unless TABS II extends the period for action in writing. No representative, agent or dealer of TABS II has the authority to modify, expand or extend this Warranty, to waive any of the limitations or exclusions, or to make any different or additional warranties with respect regarding the Product.

If TABS II determines that the goods are defective and Buyer gives proper notice of a claim under the Warranty to TABS II, TABS II may, at its option, either (1) replace the defective goods, or (2) refund to Buyer the Buyer's original cost for the defective goods. The repair, replacement, or payment in the manner described above shall be the exclusive remedy of the Buyer for breach of this Warranty. TABS II shall not be liable for labor or other costs of installation or removal of the defective product incurred by Buyer. Buyer shall have no right to "Cover" by procuring substitute goods at the cost or expense of TABS Wall Systems LLC.

**Consequential Damages, Injury, Property Damage, Lost Profits, Or Other Economic Injury Due To Any Defect In The Goods Or Any Breach By TABS WALL SYSTEMS LLC.**

**TABS II Shall Not be Liable To The Buyer In Tort For any Negligent Design Or Manufacture Of The Goods, Or For The Omission Of Any Warning There from.**

The foregoing shall not limit Buyer's recourse against any other manufacturer of goods sold under this Agreement, for any Warranty extended by other manufacturer of goods sold under this Agreement, or for any Warranty extended by such manufacturer. The Warranty of any such manufacturer will not be deemed to be the Warranty of TABS Wall Systems LLC.

**PART II - PRODUCTS**

**2.2 MATERIALS**

**PRODUCT DESCRIPTION**

Product is intended for interior or exterior nonstructural mechanical support of thin veneer on masonry, metal or frame construction for architectural aesthetics or engineered panel systems.

System is manufactured by TABS Wall System. TABS Wall System is a patented thin veneer support panel, consisting of grade embossed galvanized steel with thin veneer as specified.

**PANEL (SELECT SIZE AS REQUIRED)**

TABS Wall System patented mechanical support and spacing panel is .018" thick structural architectural grade steel, hot-dipped galvanized to G-90, with a thermo set, stucco embossed finish that has tabs punched into and protrude outwards from the plane that support and space the thin veneer. Panels are available in 1200mm x 600mm (48" x 24"), 1200mm x 1200mm (48" x 48"), 1200mm x 1800mm (48"x72"), 1200mm x 2400mm (48" x 96"), and 1200mm x custom (48" x custom) sizes.

**THIN VENEER (SELECT TYPE AS REQUIRED)**

TABS Wall System approved thin brick, tile, or veneer shall be approximately 13mm (1/2") thickness SW (severe weather) grade kiln-fired clay brick in various colors, sizes and finish, and shall meet ASTM C - 1088-88, grade exterior, type TBS, TBX, or TBA.

Thin brick sizes as follows: (select as required)

Modular-	57mm x 194mm x 13mm	(2 1/4" x 7 5/8" x 1/2")
Metric-	65mm x 194mm x 13mm	(2 5/8" x 7 5/8" x 1/2")
Economy -	92mm x 194mm x 13mm	(3 5/8" x 7 5/8" x 1/2")
Norman -	57mm x 300mm x 13mm	(2 1/4" x 11 5/8" x 1/2")
Utility -	92mm x 300mm x 13mm	(3 5/8" x 11 5/8" x 1/2")

Tile & Stone - Various standard dimensions that meet project specifications.

**ADHESIVE**

TABS Wall System adhesive is specially formulated to exceed ASTM C-557, ANSI A 136, and FHA-HUD #60 requirements, with a shear value between the thin veneer and the panel greater than 10.5 kg/cm<sup>2</sup> (100 PSI), per ASTM E-297-88. CAUTION: TABS Wall System mastic should not be used on stone. Contact distributor or manufacturer for adhesive use.

## GROUTING MATERIAL

TABS Wall System acrylic latex modified mortar meeting Type S and ANSI Specs A 118.4 requirements with a Portland cement and lime base, with shear properties of 15 kg/cm<sup>2</sup> (200 PSI) or greater. CAUTION: Do not use mortar mix with stone veneers. (For tile veneers use industry accepted grout.)

## FASTENERS (SELECT AS REQUIRED)

Fasteners shall be either corrosive resistant twist shank masonry anchors #8, or larger self-drilling or self-tapping corrosive resistant screws, galvanized nails or staples, depending on substrate, with a flat head design such as a lath screw.

Panels shall be attached to the wall with a minimum of one fastener per 900 cm<sup>2</sup> (1 square foot). Fasteners shall be attached a minimum of 25mm (1") into supporting wood frame or masonry. or 7mm (1/4") into steel studs or girts.

Fastener shall be specified by a fastener manufacturer with regards to weather conditions, substrate, shear, fatigue, installation methods, and safety.

## SHEATHING (SELECT AS REQUIRED)

Sheathing is required over a stud wall to allow the panel to lay flat. Select the sheathing material that meets the design criteria, taking into account not only its insulative, structural, or fire resistant abilities; but moisture, water vapor transmission or control features, and thermal cycling or properties of the sheathing material as well.

The following types of sheathing materials can be used with or adhered to TABS Wall System panels:

Exterior Gypsum Board - Use either regular, fire-rated, moisture resistant, or combinations, 12mm (1/2") minimum thickness that complies with appropriate use and ASTM test (036, C79, C630) or Federal specifications SS-L-30D type (II, III, IV, VI, VII), grade (FT X, R&W, X&W, W), class (1, 2, 3).

Cement Board - Shall be light weight fiber-reinforced cement board S 12mm (1/2") minimum thickness, suitable to meet fire ratings in place of gypsum, if required, and has a compressive strength higher than 70 kg/cm<sup>2</sup>(1.000 PSI), tensile strength over 35 kg/cm<sup>2</sup> (500 PSI), and nail head pull-through greater than 57 kg (125 lbs).

Insulation Board -12mm (1/2") minimum thickness.

Use either expanded polystyrene (EPS) - Type 1, air dried, with a flame and smoke rating per ASTM-84 that meets Class 1.

Extruded polystyrene - per ASTM C-578 with a flame and smoke rating per ASTM-84 that meets Class 1.

Polyisocyanurate that complies with Federal Specification HH-1 1972/1, Class 2.

Insulating boards manufactured with wood fibers shall meet the strength and durability tests specified in ASTM C-208 and C-532.

Wood-based panels, 12mm (1/2") minimum thickness, shall be APA rated and designed to meet performance and durability requirements for designated application.

Panels manufactured as:

- Plywood
- Wafer Board
- Oriented-Strand Board
- Structural Particle Board
- Composite Panels

Sheathing shall be applied per manufacturer's instructions.

#### WATER INFILTRATION BARRIER (SELECT AS REQUIRED)

The following types of infiltration barriers are approved by TABS Wall System for use with the TABS Wall System:

Rufco-wrap, as manufactured by Ravem Industries, Inc. Tyvek, as manufactured by DuPont Company.

Green Guard Rain Drop, as manufactured by Pactive Products.

Typar, as manufactured by Reemay, a member of Intertech Group. #15 perforated saturated felt paper, as manufactured by Tamco or equal. Felt paper should be installed with a minimum 50mm (2") lap.

Products specified shall comply with manufacturers recommendations, and performance requirements for the project.

### PART III - EXECUTION

#### 3.1 INSPECTION

Installer must examine conditions under which the TABS Wall System is to be installed and notify contractor in writing of any unsatisfactory conditions. Do not proceed with installing of TABS Wall System until the unsatisfactory conditions have been corrected in a manner acceptable to the project specifications.

Installer shall consult the other trades and contractors involved prior to start of placing the TABS Wall System, to determine any areas of potential interference. Do not start the installation until interferences have been resolved to the satisfaction of the general contractor or owner's representative.

Coordinate layout with other work to determine that work schedule is satisfactory with other contractors and the general contractor.

#### 3.2 PREPARATION

Wherever possible, take field measurements to insure proper fitting and joint placement of the system. Verify that materials are those specified before installing. Insure walls and corners are braced to area specifications.

Maximum wall frame spacing for stud walls = 60mm (24") D.C. Girts = 75mm (30") O.C.

Walls must be structurally sound and the substrate system designed with a wall deflection not greater than L/360. Substrate shall have no planer irregularities greater than 7mm in 3.05m (1/4" in 10').

**Weather barrier must be installed prior to placement of panel.**

Trim or flashing in place per project specifications or TABS Wall System details and/or BIA Technical Note 7A on Flashing of Brick Walls.

### 3.3 INSTALLATION PANELS

Exterior walls shall be constructed of structurally sound masonry, wood, or steel studs, with an approved building sheathing and a water barrier placed over it, if required. This should be done prior to the installation of the TABS Wall System panel.

Panels shall be mechanically secured to a structural wall with a manufacturers approved fastener in accordance with the manufacturers recommendations. Panels shall be attached with a minimum of one fastener per 900 cm<sup>2</sup> (sq ft). All fastening devices shall be of a corrosion resistant type with a flat back.

Panels applied to an oblique wall shall be installed with the support tabs aligned and level to each other.

If possible, panel joints shall be staggered over sheathing joints.

Control joints in the TABS Wall System (including pre-fabricated panels) are required to coincide with the building control joints, where substrates change, within 600mm - 1200mm (2-4 ft.) of corners, per Technical Note 18-A revised, as recommended by the BIA or where significant structural, substrate or frame movement occurs.

Wood construction: for wood shrinkage on a single story, a 3/8" horizontal soft joint should be placed at the top of wall at the plate line, and for multi-story buildings at each floor between the bottom plate and floor deck. To help support corner bricks the panels can be bent 90 degrees.

Panels shall be clean, free of dirt, oil or any other surface contaminant.

#### THIN VENEERS

Thin veneers shall be either field applied, factory installed, or panelized into components or curtain walls (select as required).

Thin veneer shall be initially adhered to panel using TABS Wall System adhesive in "quarter" sized dabs or vertical strips 10mm (3/8") wide.

Thin veneers shall be applied within 5 to 10 minutes after adhesive has been applied, thin veneers shall be placed in the bond pattern called for.

When all applied veneers are secured in place, fill joints and seams with an approved latex-modified mortar or industry accepted grout for tile.

Mortar vertical joints immediately following each fourth horizontal joint.

Mortar only an area that can be tooled before mortar becomes too stiff. Mortar should have dull finish and be moist, but not wet.

#### Weather Requirements:

In cold weather, do not use frozen materials in mortar mix. Do not apply mortar to frozen surfaces containing frost; do not apply mortar when ambient temperature is less than 2 degrees Celsius (35 degrees Fahrenheit) without sufficient protection and supplemental heat.

In hot weather, protect mortar from uneven and excessive evaporation. Where conditions are hot, dry, and/or windy and evaporation is great, veneer shall be fogged with water to allow the mortar enough time to set. Moist curing is not recommended for latex modified mortar.

## CAULKING

All areas where thin veneer meets non-veneer surfaces must be caulked with the proper approved sealant for conditions.

Thoroughly and neatly caulk all joints between thin veneer and abutting material.

## CLEANING

Thin veneer shall be cleaned per the appropriate method established by the Brick Institute of America for brick (see Technical Bulletin "#20 Revised", or the Association of Tile, Terrazzo & Marble Contractors and Affiliates bulletin entitled "Grouting and Cleaning Ceramic Floors with Latex Grout").

## 3.4 MAINTENANCE

When applied according to manufacturers specifications TABS Wall System installations should last indefinitely with proper maintenance. However, if for any reason the TABS Wall System should become unattached from its surface, or damaged by severe impact, the affected areas should be cleaned of old mortar, adhesive, and replacement veneer applied with approved adhesive and mortar.

Masterformat™ 2004 update available soon.