**40mm BASWA DTG Prime Frost Acoustic System**

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format. It must be carefully reviewed and edited by the Architect or Acoustical Consultant to meet the requirements of the project. Coordinate this section with other specifications sections and the Drawings.

Review and edit all items listed in *blue font color* or *red font color*.

Delete all **Specifier Notes** when editing this section by clicking on box outline and pressing “delete”.

**SECTION 09000**

**Seamless Acoustic System**

**Specifier Note**: This section covers the BASWA DTG acoustic system. Consult BASWA acoustic North America, 855.902.2792 or info@baswana.com, for assistance in editing this section for your specific application.

**PART 1 GENERAL**

1. **SUMMARY**
	1. The BASWA DTG acoustic system is used to reduce reverberation time, making voice, music, and other sound much more intelligible. Its design is based on a fine porous surface that appears to be solid, applied onto a mineral wool panel. High frequency sound energy passes through the pores, into the mineral wool, and is converted into heat energy. Low frequency sound energy vibrates the porous surface diaphragmatically, and is converted into heat energy.
	2. The BASWA DTG acoustic system is a complete manufactured system. Components of the system are as follows: 38mm (1 ½”) BASWA DTG system panels, which consist of mineral wool with mineral granulate pre-coat and airtight FRK backing, are mounted to a drywall grid framing assembly (in accordance with ASTM C636 and ASTM C754, or per local codes) at each framing member using a BASWA-approved ASTM C557 adhesive and 1 7/8” cadmium-plated, fine-thread drywall screws. The panel surface is coated with hand-troweled BASWA Prime as a base layer and finished with a spray-applied Frost finish coat of BASWA Base.
	3. The work described in this Section, as shown on Drawings, Finish Schedules, or as specified herein, shall be in accordance with the requirements of the Contract Documents.
2. **SECTION INCLUDES**
	1. Work in this Section includes all labor, materials, equipment, and services necessary to complete the BASWA DTG acoustic system, as shown on the drawings, finish schedules, and / or defined and specified herein.
3. **RELATED SECTIONS**

**Specifier Note:** Edit the following list of related sections as required for the project. List other sections with work directly related to this section.

* 1. Carpentry – See section 06200
	2. Suspension Systems - See section 09226
	3. Gypsum board – See section 09250
1. **QUALITY ASSURANCE**
	1. Certified installers
		1. All Contractors shall be certified to install the BASWA DTG acoustic system by BASWA acoustic North America, LLC (855.902.2792 or info@baswana.com)
2. **SUBMITTALS**
	1. Samples /OR/ Mockup

**Specifier Note**: Use i or ii as applicable to your project needs.

* + 1. Samples: Provide two 8-1/2” x 11” samples of the BASWA DTG acoustic system in color as noted in Section 2.1 below. Samples must show the complete panel and all layers to be installed.
		2. Job Site Mockup: Install a 4’ x 4’ mock-up of the BASWA DTG acoustic system replicating relative details and conditions. Obtain mockup acceptance before any additional applications. Accomplish work to equal or exceed standard established by accepted job site mockup.
1. **TEST DATA**
	1. Acoustical performance data
		1. Certified reports for Acoustical Performance Sound Absorption determined per ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method for ‘Type E’ Mounting, conducted by an accredited, independent, testing agency, shall be submitted upon request and meet the following minimum requirements. Noise Reduction Coefficient (NRC) rating for the 40 mm (1 9/16”) system shall be 0.85 with frequency absorption coefficients as follows:

Frequency Absorption

(Hz) Coefficient

80 0.10

100 0.40

125 0.86

160 0.67

200 0.70

250 0.82

315 0.89

400 0.95

500 0.92

630 0.97

800 0.99

1000 0.94

1250 0.89

1600 0.84

2000 0.80

2500 0.78

3150 0.69

4000 0.65

5000 0.61

* 1. Fire test data
		1. Certified reports for Surface Burning Characteristics determined per ASTM E 84 Twenty-Five Foot Tunnel Furnace Test Method, conducted by an accredited, independent, testing agency, shall be submitted upon request and meet the following minimum requirements:

Class A Flame Spread Classification

20 Flame Spread or less

* + - * 1. 15 Smoke Development or less
	1. Mold test data
		1. Certified reports for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber determined per ASTM D3273-16, conducted by an accredited, independent, testing agency, shall be submitted upon request and meet the following minimum requirements:

10 / 10 – Week 4 – No Defacement

* 1. Light reflectance test data
		1. Certified Reports for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating Sphere Reflectometer determined by ASTM E 1477-98, conducted by an accredited, independent, testing agency, shall be submitted upon request and meet the following minimum requirements:

Light Reflectance Value ‘L’ a minimum of 85.61.

* 1. Adhesive strength test data
		1. Certified Reports for Tensile Properties of Adhesive Bonds determined by ASTM D897, conducted by an accredited, independent, testing agency, shall be submitted upon request and meet the following minimum requirements:

Average Tensile Strength of 106 (psf) with an avg Maximum Force applied of 431 (lbf)

1. **SUSTAINABILITY DATA**

**Specifier Note:** List reference standards in this section, complete with designations and titles. Include or delete Section(s) below as applicable to your project needs.

* 1. LEED V4
		1. EA Optimized Energy Performance

Provides a high R-Value

* + 1. MR Building Product Disclosure and Optimization- Environmental Product Declarations

Detailed information on the components of panels and finishes have been third-party tested and documented.

* + 1. MR Building Product Disclosure and Optimization- Sourcing of Raw Materials

System panels contain 53.5% recycled materials and are made from recycled glass.

Finish materials contain 95% recycled materials and are made from aggregate produced during marble stone extraction.

* + 1. MR Building Disclosure and Optimization- Material Ingredients

HPD documentation and third-party Life Cycle Assessments have been conducted to verify improved life-cycle impacts.

* + 1. PBT Source Reduction- Mercury

No mercury present in product

* + 1. MR Construction and Demolition Waste Management

Typical installation results in less than 3% waste. Panel scraps are acceptable as glass recycling. Buckets are also recyclable.

* + 1. EQ Low-Emitting Materials

Low VOCs present

* + 1. EQ Thermal Comfort

Provides a high R-Value

* + 1. EQ Interior Lighting

High density marble aggregate finish is highly reflective

* + 1. EQ Daylight

High density marble aggregate finish is highly reflective

* + 1. EQ Acoustic Performance

NRC of 0.85

* + 1. RP Regional Priority

Manufactured in Chardon, OH

Material extraction in Marble Hill, GA

* 1. HPD reported and current
	2. EPD Reported and current
1. **REFERENCES**

**Specifier Note:** List reference standards in this section, complete with designations and titles. Include or delete Section(s) below as applicable to your project needs.

* 1. ASTM C 423-22: Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method. ‘Type A’ Mounting.
	2. ASTM E 795-16: Standard Practices for Mounting Test Specimens During Sound Absorption Tests.
	3. ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials
	4. ASTM E 1477-98: Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating Sphere Reflectometer.
	5. ASTM D 3273-16: Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
	6. ASTM D897: Standard Test Method for Tensile Properties of Adhesive Bonds
	7. ASTM C557: Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing
	8. ASTM C636: Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
	9. ASTM A641/A641M: Standard Specification for Zinc–Coated (Galvanized) Carbon Steel Wire
	10. ASTM C635/C635M: Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
	11. ASTM C645: Standard Specification for Nonstructural Steel Framing Members
	12. ASTM C754: Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
	13. ASTM A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
1. **DELIVERY, STORAGE, AND HANDLING**
	1. Ship and deliver in protective packaging to prevent freight damage.
	2. Allow materials to become acclimated to Project conditions before installation.
	3. Store materials in accordance with manufacturer's recommendations in a fully enclosed space where materials will be protected against damage from moisture, surface contamination, and other causes.
	4. Protect BASWA Prime and Base from freezing. Product that has frozen cannot be used and is not warranted.
2. **PROJECT CONDITIONS**
	1. Environmental Requirements: Comply with requirements of referenced plaster application standards and recommendations of product manufacturer for environmental conditions before, during, and after installation.
	2. Temperature Requirements: Where ambient outdoor temperature at the building site is less than 55⁰ F (13⁰ C), a temperature of not less than 55⁰ F and not more than 80⁰ F shall be maintained continuously in the area of the installation for a period of not less than one week prior to the application of BASWA DTG acoustic system. Temporary heat shall be evenly distributed to prevent concentrated uneven heat or cold on the BASWA DTG acoustic system or its substrate. Acceptable temperature range shall be maintained until the permanent HVAC system is activated.
	3. Ventilation: Ventilate building spaces as required to remove excess moisture to promote drying of the applied materials.
	4. Protect contiguous work from soiling, splattering, moisture deterioration, and other harmful effects that may be caused by the application of the materials.

**PART 2 – PRODUCTS**

* + - 1. **MATERIALS**
				1. Materials and installation shall be based upon the BASWA DTG acoustic system’s performance, specifications, planning documents, and details as supplied by BASWA acoustic North America, LLC, 21863 Aurora Rd., Cleveland, OH 44146, www.baswana.com, 855.902.2792, info@baswana.com. No substitutions.
				2. The BASWA DTG acoustic system shall be provided in a total system thickness of 40 mm.
				3. The BASWA DTG acoustic system shall consist of a 38mm (1 ½”) BASWA DTG system panel, BASWA Prime, and a spray-applied Frost finish coat of BASWA Base.
				4. Trim

All corner beads, terminations, control joints, or other trim pieces shall be white vinyl BASWA proprietary beads. Specialty beads and reveals in profiles approved by BASWA acoustic shall be white vinyl beads manufactured by either Trim Tex or Vinyl Corp.

Trims shall be installed with Trim-Tex 847 Spray Adhesive; no other adhesive is approved.

* 1. Color

**Specifier Note:** Use i for the standard natural white applications or ii for custom tinted applications, as applicable to your project needs.

* + 1. The spray-applied Frost finish coat of BASWA Base shall be provided in BASWA standard natural white.
		2. The spray-applied Frost finish coat of BASWA Base shall be tinted by the addition of BASWA Colors tint additive. Color shall be selected by the Architect or as noted in the Finish Schedule.

* 1. BASWA Protect surface protectant

**Specifier Note:** Determine if the area of the application will be exposed to unusually abusive soiling conditions. Include or delete section f as applicable to your project needs.

* + 1. A spray application of BASWA Protect shall be applied to the finished surface after system has completely dried for a minimum of 12 hours. The non-bridging coating resists stains and improves cleanability without negatively affecting acoustical absorption. Application and coverage shall be per manufacturer’s approved application guidelines.

**PART 3 – EXECUTION**

* + - 1. **INSPECTION**
				1. Examine areas where, and conditions under which, the BASWA DTG acoustic system is to be installed. Correct any conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected to permit the proper installation of the work.
				2. Verify that all mechanical and electrical services within the area of application have been roughed in at the appropriate depth relative to the thickness of the system; tested and approved, prior to commencement of application. Review approved details provided by BASWA acoustic for verification.
			2. **ACCEPTABLE SUBSTRATE**
				1. General

The BASWA DTG acoustic system must be installed over a framing system that is in accordance with ASTM C636 and ASTM C754, or per local codes.

Fasteners used to attach panels to framing should be cadmium-plated, fine thread, bugle head 1 7/8” drywall screws.

All substrates for the application shall not vary from plumb by more than a total of 1/4 inch in 12 feet.

* + - * 1. Framing assembly

**Specifier Note:** Determine the substrate condition(s) in the area(s) where BASWA is to be installed. Include and / or delete Section(s) below as applicable to your project needs.

Recycled content of steel products: post-consumer recycled content plus one-half of pre-consumer recycled content not less than 25%.

Framing members, general: comply with ASTM C754 for conditions indicated.

Protective coating: ASTM A 653/A 653M, G40, hot dip galvanized unless otherwise indicated.

Drywall grid assembly

Complies with applicable requirements per ASTM C645, direct hung system composed of index support bars and cross-furring drywall suspension tees that interlock.

Framing system

Deflection criteria: L/360 per ASTM C635 standard practice for metal suspension systems.

Galvanized steel: G40 double-web tee, hot dipped galvanized steel.

Framing members

Index support bars: 4 feet on center

Suspension system main tees: 2 feet on center (to create a 2’ x 2’ grid pattern).

BASWA DTG panels are 2’ x 4’ and framing should reflect this size.

The framing cannot have any residue or oil finish. If it does the framing must be wiped down with acetone.

Attachment devices: size for five times the design load indicated in ASTM C635/C635M, Table 1, “Direct Hung” unless otherwise indicated. Comply with seismic design requirements, if applicable.

Wire hangers, braces, and ties: provide wires complying with the following requirements:

Zinc-Coated, Carbon-steel wire: ASTM A 641/A641M, Class 1 zinc coating, soft temper.

Size: Minimum 12 gage per ASTM C636

* + - 1. **INSTALLATION**
				1. General Information and Requirements

Hand Tools

All application of BASWA DTG system panels, BASWA Prime, and spray-applied Frost finish coat of BASWA Base must be facilitated by using the proper BASWA stainless steel flat or notched hand trowels available from BASWA acoustic. The proper notched gauging trowels and smoothing trowels shall be used at each step noted below to control material thickness.

Graco Pump (Required for application of Frost Finish Coat)

The spray-applied Frost finish coat of BASWA Base must be applied using the Graco RTX 5000PX. Graco pump can be purchased thru BASWA acoustic, Sherwin-Williams, or Graco, Inc. and other authorized dealers.

Lighting

Inherent in all hand troweled product applications, minor acceptable trowel marks or imperfections in the finished surface may occur and become exposed or exaggerated under critical lighting. Ensure that the lighting used during the entire installation process replicates the actual finished lighting. All skylights, clearstory windows and other openings which naturally light the area of the installation shall be uncovered during the entire installation to represent finished conditions.

Drying Times

Drying time for the BASWA Prime is typically 24-48 hours, however, drying times may be longer due to unusual on-site conditions. Prior to proceeding with any additional work, ensure BASWA Prime Coat is completely and thoroughly dry.

Finished Coat Installation

Application of the Frost finish coat of BASWA Base shall be facilitated in one operation at each area of installation.

Staging

Generally, the BASWA DTG acoustic system can be installed using rolling towers or mobile scaffolds. A full dance floor scaffolding is NOT necessary.

Access Doors in BASWA

BASWA proprietary access doors are GFRG and include a mud bump to provide a finishing edge for the BASWA Base material. BASWA proprietary access panels measure 24” x 24”.

Access Doors used in the BASWA DTG acoustic system can be flanged or trimless. Trimless access door model number 5020, sized as required, manufactured by Acudor Products Inc. (800.722.0501) or similar. Install per detail approved by BASWA acoustic.

Securing to BASWA

Light fixtures, ornamentation, speakers, cover plates, or any other items cannot be attached to the BASWA DTG acoustic system. Ensure items are secured to a BASWA Installation Platform, proper blocking, or other approved attachment system independent of the BASWA DTG acoustic panel per BASWA-approved details.

* + - * 1. Installation procedures

Install BASWA DTG acoustic system in accordance with BASWA acoustic’s planning documents, installation instructions, and details. Installation shall start only after all other work in the area of the installation has been completed.

BASWA DTG system panels

Adhere FRK face of BASWA DTG system panels to each framing member using a BASWA-approved ASTM C557 adhesive, ensuring contact with the grid. Once adhered, install screws in accordance with BASWA planning documents.

Abut subsequent panels flush and joint-tight. Stagger joints between panels.

Trim

Install white vinyl BASWA proprietary trim pieces. Trims shall be installed with Trim-Tex 847 Spray Adhesive; no other adhesive is approved.

Prime Screw Heads, Trim, and Seams

1. While installing the DTG System panels, apply BASWA Prime to cover the surface of the trim, screw heads, and panel seams. When the Prime coat is dry sand smooth.

BASWA Prime Coat

Prior to applying the base-layer coat of BASWA Prime, ensure materials are thoroughly mixed. Hand-deliver and gauge a 2.0mm thick layer and trowel smooth.

Sand smooth when completely dry.

Do not tint BASWA Prime

**Specifier Note:**  Determine if BASWA is specified in standard natural white or a custom color. Remove section 5 or 6 accordingly, as applicable to your project needs.

Spray-applied Frost Finish Coat of BASWA Base (**Standard Natural White**)

Prior to applying the Frost finish of BASWA Base, ensure product is thoroughly mixed and several pails are continuously batched together to provide even, consistent color.

Using a Graco PX5000 pump in 2-3 spray applications, deliver a 1.0-2.0mm thick layer of BASWA Base, achieving a quality level consistent with accepted samples or mock-up.

Note the BASWA systems are hand-crafted finish products. Inherent in all hand-crafted products, minor acceptable trowel marks and other imperfections in the finished surface may occur which are only visible at certain times of day or under certain critical lighting conditions. The finish should be critically viewed only under end-use lighting conditions

Spray-applied Frost Finish Coat of BASWA Base in Number / Name of Color (**Custom Color**)

Color is specified. Prior to applying the Frost finish coat of BASWA Base, add one vial of BASWA Colors tint additive per bucket. Ensure product is thoroughly mixed and several buckets are continuously batched together to provide even, consistent color.

Using a Graco PX5000 pump in 2-3 spray applications, deliver a 1.0 – 2.0mm thick layer of BASWA Base, achieving a quality level consistent with accepted samples or mock-up.

Note that BASWA systems are hand-crafted finish products. Inherent in all hand-crafted products, minor acceptable trowel marks and other imperfections in the finished surface may occur which are only visible at certain times of day or under certain critical lighting conditions. The finish should be critically viewed only under end-use lighting conditions.

**END OF SECTION**