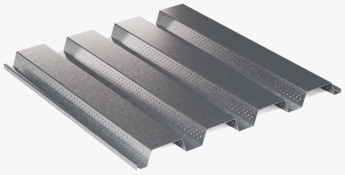
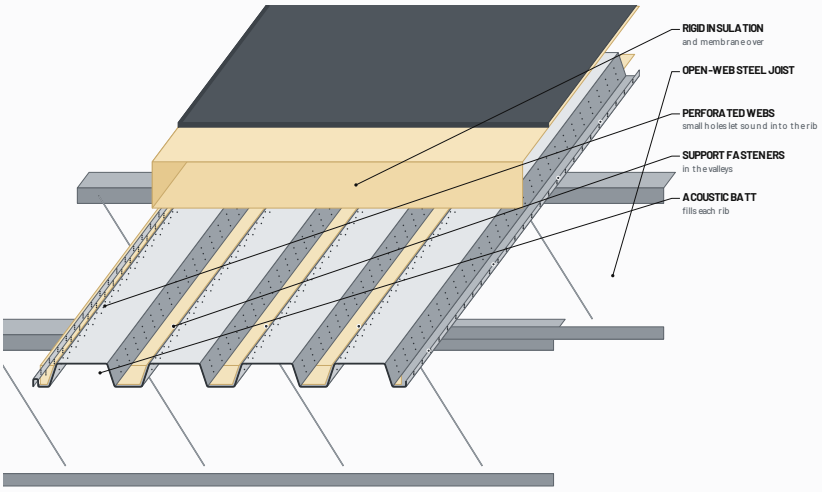
ACOUSTIC ROOF DECK

Perforated steel roof deck with acoustic batts · 1-1/2" and 3" profiles · NRC about 0.70



ACOUSTIC ROOF DECK
R15-A · 1-1/2" × 6" with perforated webs shown



PRODUCT 27 · STEEL ROOF DECK & FLOOR DECK

Saturn Metal acoustic roof deck is the roof deck of DS-26 with **perforated webs** and a **glass-fibre acoustic batt in every rib**. Sound from the room passes through the perforations into the batts and is absorbed instead of bouncing back off the steel. An exposed deck ceiling in a gymnasium, arena, warehouse, school or terminal becomes a sound-absorbing surface, with a noise reduction coefficient of **about 0.70**, while the roof above is built exactly as on a plain deck.

- The same four profiles, spans and gauges as plain roof deck
- NRC about 0.70 with batts, against about 0.05 for plain deck
- Prepainted white underside for a bright, finished ceiling
- Strength and stiffness within a few percent of plain deck

PROFILES	PERFORATIONS	BATTS	NRC	GAUGES	FINISH
Same four as DS-26	Both webs	Glass fibre, in the ribs	About 0.70	22 · 20 · 18 · 16	White underside

1 FOUR NAMES, ONE PRODUCT

Acoustic roof deck
Our product name: roof deck that absorbs sound from the room below.

Acoustical deck
The name on many specifications and acoustic reports.

Perforated deck
Names the feature: the webs are punched with small holes.

Sound-absorbing deck
Says what it does when the ribs hold acoustic batts.

2 THE PARTS OF THE DECK

1. **Perforated webs.** both webs of every rib are punched with small round holes
2. **Acoustic batt.** a glass-fibre batt fills each rib, behind the perforations
3. **Plain flats.** top and bottom flats stay solid for fastening and roofing
4. **Insulation and membrane.** go on top exactly as on a plain deck

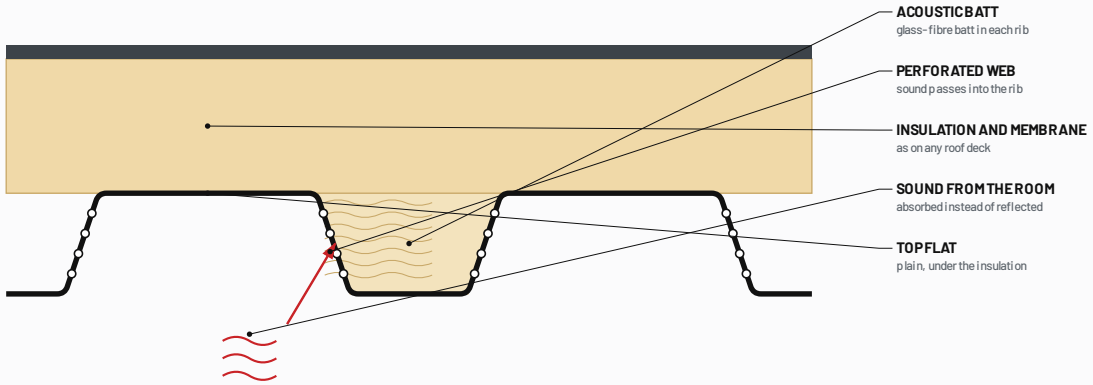
ABSORBS SOUND	SAME ROOF	FOUR PROFILES	WHITE UNDERSIDE
NRC about 0.70	Insulation and membrane as usual	1-1/2" and 3" deep	Finished ceiling

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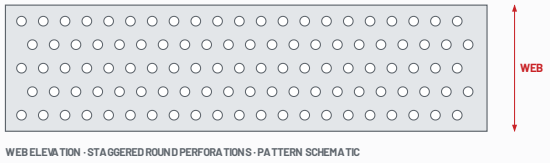
HOW IT WORKS

Perforated webs, batts in the ribs, and what changes against plain deck

3 HOW IT WORKS



4 THE PERFORATIONS



WEB ELEVATION · STAGGERED ROUND PERFORATIONS · PATTERN SCHEMATIC

Small round holes punched through both webs of every rib let sound into the rib, where the batt absorbs it. The flats stay solid, so the deck is fastened, lapped and roofed exactly like plain deck. The perforation pattern and open area are those of the deck product on your order.

5 HOW MUCH SOUND IT ABSORBS



The noise reduction coefficient (NRC) is the average absorption across speech frequencies, from 0 (all sound reflected) to 1 (all absorbed). Plain steel reflects almost everything. Perforated deck with batts in the ribs typically reaches an NRC of about 0.70; the tested value for a specific deck and batt comes from its acoustic test report.

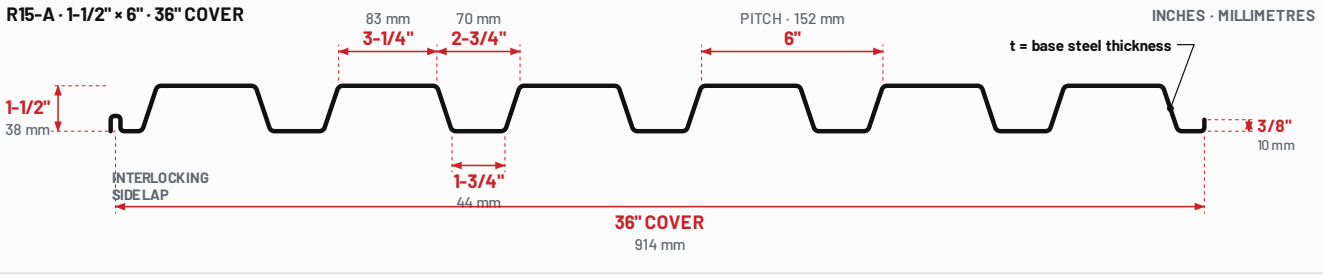
6 PLAIN DECK OR ACOUSTIC DECK

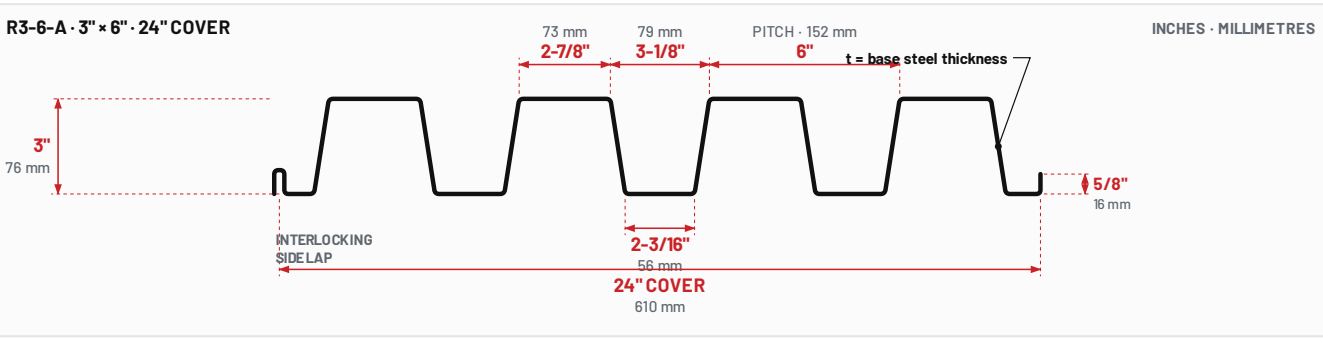
	PLAIN ROOF DECK (DS-26)	ACOUSTIC ROOF DECK (DS-27)
Webs	Plain	Perforated with small round holes
Ribs	Empty under the insulation	Filled with glass-fibre acoustic batts
Top and bottom flats	Plain	Plain: fastening and roofing unchanged
Sound absorption	Low: NRC about 0.05	High: NRC about 0.70 with batts
Bending strength	100%	About 95% (1-1/2") · 90% (3")
Stiffness	100%	About 100% (1-1/2") · 95% (3")
Finish	G90, galvanneal, prepainted	Usually prepainted white underside
Where	Any roof	Exposed deck ceilings in noisy or echoing rooms

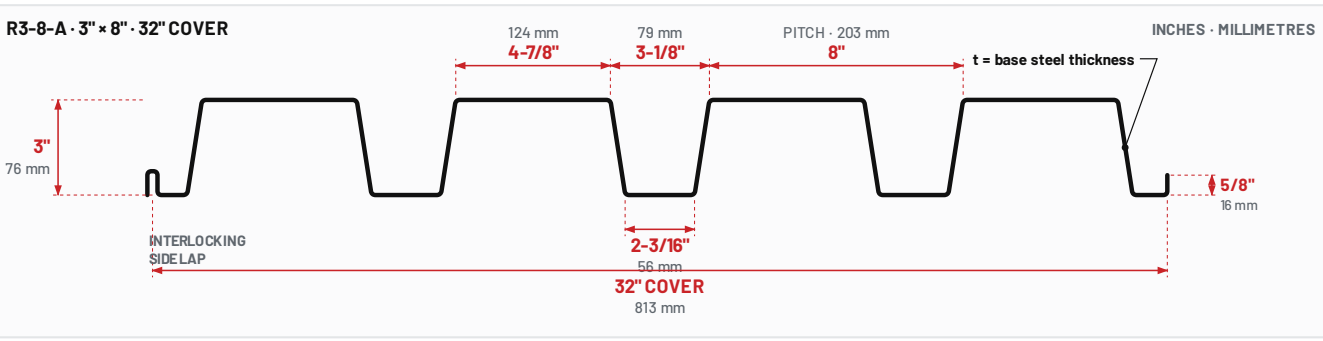
PROFILES

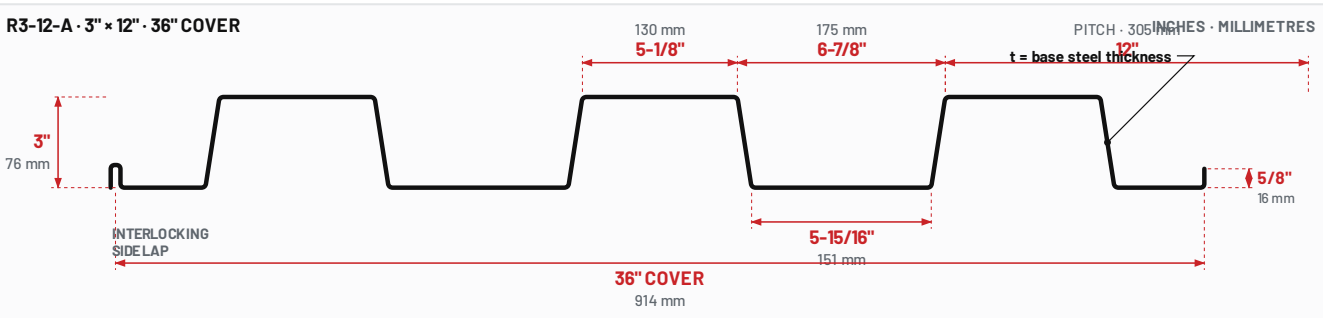
Dimensioned sections of the four acoustic roof deck profiles, inches and millimetres

7 THE FOUR PROFILES









PROFILE	DEPTH	RIB PITCH	COVER	TOP FLAT	RIB OPENING	BOTTOM FLAT	RIBS / SHEET	EDGE LIP
R15-A	1-1/2" · 38 mm	6" · 152	36" · 914	3-1/4" · 83	2-3/4" · 70	1-3/4" · 44	6	3/8" · 10
R3-6-A	3" · 76 mm	6" · 152	24" · 610	2-7/8" · 73	3-1/8" · 79	2-3/16" · 56	4	5/8" · 16
R3-8-A	3" · 76 mm	8" · 203	32" · 813	4-7/8" · 124	3-1/8" · 79	2-3/16" · 56	4	5/8" · 16
R3-12-A	3" · 76 mm	12" · 305	36" · 914	5-1/8" · 130	6-7/8" · 175	5-15/16" · 151	3	5/8" · 16

Nominal profile dimensions, the same as the plain roof deck; the webs are perforated over their height. Rib opening is the width between top flats.

SPECIFICATIONS & SECTION PROPERTIES

Steel, perforations, batts, finishes, weights, section properties, specifying and standards

8 SPECIFICATIONS

STEEL	Structural quality steel sheet, ASTM A653 / A653M, 33 ksi (230 MPa) minimum yield
GAUGES	22, 20, 18, 16 (0.030", 0.036", 0.048", 0.060" base steel)
PERFORATIONS	Both webs of every rib; flats plain
BATTS	Glass-fibre acoustic batts sized to the rib; polyethylene-wrapped batts on request
FINISHES	Prepainted white underside (usual) · G90 (Z275) galvanized · A25 (ZF75) galvanneal
LENGTHS	Cut to the length ordered
DESIGN	CSA S136 · CSSBI 10M · acoustic load tables as published for the deck product

9 WEIGHT PER SQUARE FOOT OF ROOF, STEEL ONLY

GAUGE	BASE STEEL	R15-A	R3-6-A	R3-8-A	R3-12-A
22	0.030" · 0.76 mm	1.78 psf · 8.7 kg/m²	2.49 psf · 12.1 kg/m²	2.18 psf · 10.7 kg/m²	1.90 psf · 9.3 kg/m²
20	0.036" · 0.91 mm	2.12 psf · 10.4 kg/m²	2.96 psf · 14.4 kg/m²	2.60 psf · 12.7 kg/m²	2.27 psf · 11.1 kg/m²
18	0.048" · 1.21 mm	2.80 psf · 13.7 kg/m²	3.90 psf · 19.0 kg/m²	3.43 psf · 16.7 kg/m²	2.99 psf · 14.6 kg/m²
16	0.060" · 1.52 mm	3.47 psf · 16.9 kg/m²	4.84 psf · 23.6 kg/m²	4.25 psf · 20.8 kg/m²	3.71 psf · 18.1 kg/m²

Plain-deck values with G90 zinc; perforations remove a little steel and the batts add a little weight: allow about the same total.

10 NOMINAL GROSS SECTION PROPERTIES, PLAIN DECK, PER FOOT OF WIDTH

GAUGE	R15-A A IN²/FT	I IN⁴/FT	S IN³/FT	R3-6-A A IN²/FT	I IN⁴/FT	S IN³/FT	R3-8-A A IN²/FT	I IN⁴/FT	S IN³/FT	R3-12-A A IN²/FT	I IN⁴/FT	S IN³/FT
22 · 0.030"	0.501	0.192	0.220	0.699	0.973	0.633	0.614	0.891	0.510	0.535	0.884	0.548
20 · 0.036"	0.601	0.228	0.262	0.837	1.162	0.757	0.736	1.064	0.609	0.641	1.056	0.655
18 · 0.048"	0.799	0.298	0.344	1.114	1.535	0.999	0.979	1.406	0.804	0.854	1.396	0.866
16 · 0.060"	0.995	0.366	0.422	1.389	1.901	1.237	1.222	1.741	0.996	1.066	1.729	1.073

Gross properties of the plain profile (steel area A, moment of inertia I, smaller section modulus S), calculated from the nominal profile and base steel thickness. For acoustic deck, bending strength is typically about 5% lower on 1-1/2" deck and 10% lower on 3" deck, and stiffness about 0% and 5% lower. Metric: A × 2117 = mm²/m · I × 1366 = ×10³ mm⁴/m · S × 53.8 = ×10³ mm³/m. **The acoustic load tables and design properties for the deck product on your order come with the quotation** and govern the design.

11 SPECIFICATION GUIDE

Acoustic steel roof deck: Saturn Metal [R15-A 1-1/2" × 6", 36" cover] [R3-6-A] [R3-8-A] [R3-12-A 3" deep] galvanized steel roof deck with perforated webs, ASTM A653 / A653M 33 ksi, [22] [20] [18] [16] gauge, [prepainted white underside] [galvanneal] finish, interlocking side laps, with glass-fibre acoustic batts in every rib, lengths as scheduled. NRC not less than [0.70] as tested. Install with ribs across supports, end laps on supports, fastened as shown on the structural drawings; closures at rib ends; accessories as detailed.

12 STANDARDS

CSA S136	Design of cold-formed steel structural members
CSSBI 10M	Standard for steel roof deck
ASTM C423	Sound absorption by the reverberation room method (NRC)
ASTM A653	Steel sheet, zinc-coated (galvanized) or zinc-iron alloy-coated

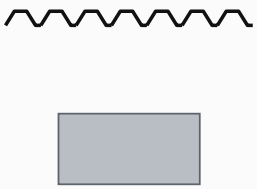
WHERE IT GOES & ON SITE

Rooms that need absorption, design notes, delivery, placing, batts and openings

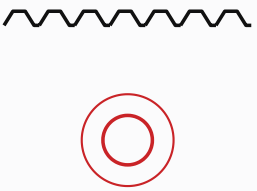
13 WHERE IT GOES



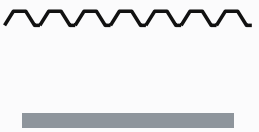
GYMNASIUMS & ARENAS
exposed deck, hard surfaces



WAREHOUSES & PLANTS
noisy work under an open roof



SCHOOLS & HALLS
speech and music



TRANSIT & TERMINALS
large public rooms

14 DESIGN NOTES

Spans and gauges

Acoustic deck spans like plain deck, a few percent less. Use the acoustic load tables for the deck product; where a span is close to the limit, the next gauge up restores the margin.

The roof above

Insulation, vapour retarder and membrane go on the top flats as on any roof deck. The batts sit below the insulation, inside the ribs, and need no cover of their own.

The ceiling below

Order a prepainted white underside for a finished ceiling; galvanneal takes field paint. Lights, ducts and sprinkler pipes hang from the structure, not from the deck, unless the design allows it.

Moisture

Keep the batts dry: a wet batt loses absorption and holds water against the steel. Store bundles under cover and close the roof promptly after the deck goes on.

15 ON SITE

Delivery and storage

Bundles arrive banded by profile, gauge and length; batts arrive bagged, or already placed in the ribs on request. Store both off the ground and under a ventilated cover.

Placing and fastening

Exactly as plain roof deck: ribs across the supports, end laps on supports, bearing as the tables assume, fastened at every support and along the side laps in the pattern designed.

The batts

Place a batt in every rib before the insulation goes on, pushed down to fill the rib end to end. Fit flute closures at walls, curbs and openings so the batts stay in place and the ribs are closed.

Openings and cuts

Cut openings after the deck is fastened and frame them as the design shows; replace the batts cut out and close the rib ends with closures.

Finish

Protect the painted underside from weld spatter and scratches; touch up field cuts and welds with a matching paint.

Safety

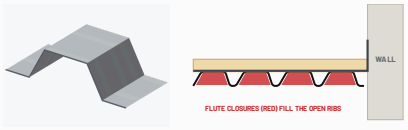
Sheets are sharp, slippery when wet and lift in wind; fasten each sheet before leaving it and follow the site fall-protection plan.

ACCESSORIES, QUESTIONS & NOTICE

Closures, ridge and valley plates, cover plates, sumps, angles and cants; common questions

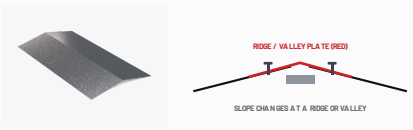
16 DECK ACCESSORIES

Galvanized accessories, cut to length. Flute closures matter more here: they hold the batts in the ribs at every rib end.



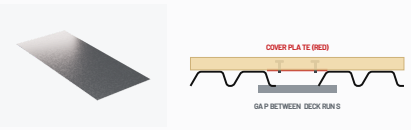
Flute closures

Metal or foam closures that fill the open ribs where the deck ends at a wall, parapet, curb or beam: they stop air, concrete, insulation and fire-stopping from passing through.



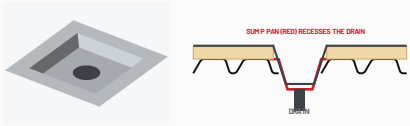
Ridge & valley plate

A bent galvanized plate that covers the gap where the deck changes slope at a ridge or a valley, so insulation and membrane stay supported.



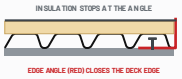
Cover plate

A flat galvanized strip that bridges the gap where deck runs meet, change direction or stop short at a beam.



Sump pan

A recessed galvanized pan set into the deck at a roof drain, so the membrane slopes into the drain.



Edge angle

A galvanized angle along the deck edge that closes the ribs and gives the insulation or the slab edge a stop.



Cant strip

A triangular strip at walls and curbs that eases the membrane up the vertical surface.

17 COMMON QUESTIONS

Does the acoustic deck span less?

A little: the perforations take a few percent off the web strength. The acoustic load tables account for it; often the same gauge still works.

What NRC can I expect?

About 0.70 with glass-fibre batts in the ribs, typical of perforated steel roof deck. The tested value for the deck and batt on your order comes from its acoustic report.

Are the batts a fire risk?

Glass-fibre batts are non-combustible. Confirm the roof assembly and any fire-resistance rating with the designer.

Do the batts need a cover?

No. They sit in the ribs under the roof insulation. Closures at the rib ends keep them in place.

Which profiles are acoustic?

All four: 1-1/2" × 6", and 3" × 6", 8" and 12", with the same covers as DS-26.

Painted or galvanized?

A prepainted white underside gives a bright finished ceiling; galvanneal or G90 where the deck will be field painted.

Related: DS-26 steel roof deck · DS-28 composite floor deck · DS-29 form deck · DS-03 cold-formed joists · DS-12 resilient channel
Technical questions and quotes: +1 (416) 746-8000 · Sales@SaturnMetal.ca · www.SaturnMetal.ca

IMPORTANT NOTICE

This data sheet gives general product information only. It is not engineering, design or installation advice. A qualified design professional must review every application, and the building code and project documents always govern. Deck profile, gauge, span, fastening, openings, approvals and acoustic performance must follow the structural and acoustic design and the tables, listings and test reports published for the deck product on the order. Drawings are schematic and not to scale unless noted; dimensions are nominal and subject to standard tolerances. Values marked typical, approximate or commonly specified are for reference only. Standards are referenced by name for identification; always use the edition required by the governing code. Saturn Metal may change products and information without notice; confirm current data before ordering or specifying. Warranties and remedies, if any, are only those in Saturn Metal's written terms of sale. Names of standards bodies belong to their owners. Saturn Metal is a metal products manufacturer and/or supplier; this sheet does not mean the product is manufactured by Saturn Metal. © Saturn Metal