



Math 243 Wednesday Mar. 18

Group rep:  $\rho: G \rightarrow GL(V)$   $(V, \rho) = V$   $\rho(g)v = gv$   
 $V$  is a rep. of  $G$ , or  $G$ -module, or a  $G$ -module

$\chi_V(g) = \text{tr}_V \rho(g) : G \rightarrow \mathbb{C}$ ,  $\chi_V(hgh^{-1}) = \text{tr}_V \rho(h)\rho(g)\rho(h^{-1})$   
 constant on conj. classes  $= \chi_V(g)$

$W \subset V$ ,  $V/W$   $\chi_V = \chi_W + \chi_{V/W}$   
 $\Rightarrow \chi_{V \oplus W} = \chi_V + \chi_W$

$\chi_{V \otimes W} = \chi_V \cdot \chi_W$

$G \curvearrowright V$ ,  $G \curvearrowright V^*$   
 $g \mapsto \overline{\rho(g)^*}$

$\chi_{V^*}(g) = \chi_V(g^{-1})$   
 $= \overline{\chi_V(g)}$

$V \xrightarrow{\rho(g)} V$

$V^* \xleftarrow{\rho(g)^*} V^*$

$\begin{pmatrix} \rho_W & \\ 0 & \rho_{V/W} \end{pmatrix}$

$\text{Hom}_G(V, W)$

$V^* \otimes W$

$\chi_{\text{Hom}_G(V, W)}(g) = \chi_{V^*} \chi_W(g)$

$\xi \otimes w \mapsto (v \mapsto \xi(v)w)$

$V \xrightarrow{\alpha} W$

$g \cdot x = g \cdot \alpha \cdot g^{-1}$

$gh \cdot x = g(h \cdot x)$

$gh \cdot x = h \cdot g^{-1} \cdot x$

$g(h \cdot x) = g \cdot h \cdot x$

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SUSTAINABLE WRITING BOARD SOLUTIONS



Unleash the power of indestructible Vitrex Writing Surfaces



## DO YOU FIND YOURSELF CONSTANTLY REPLACING WRITING BOARDS AND WASTING FUNDS?



Standard writing boards last only 2-3 years in an education environment.

There's a better way!

Vitex Writing Boards have a surface warranty of 25 years.

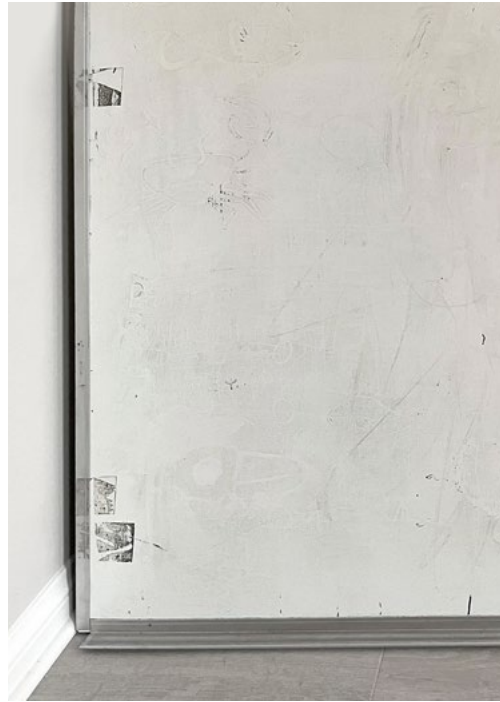
This means no more replacements, and significant financial, operational and environmental savings.



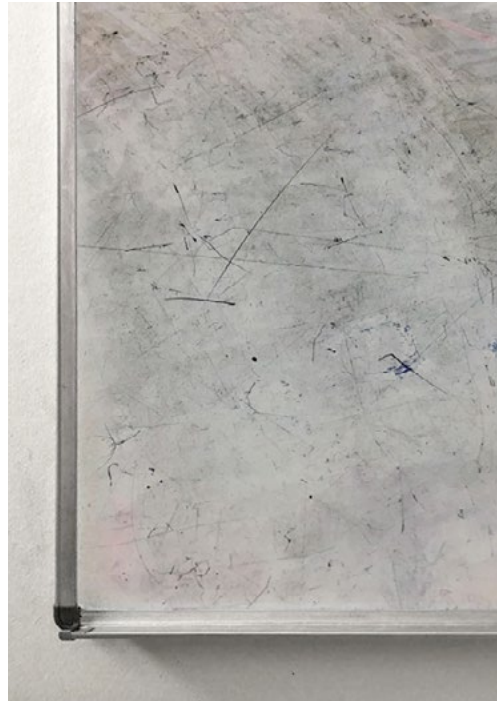
# HOW DO STANDARD WRITING BOARDS FAIL?



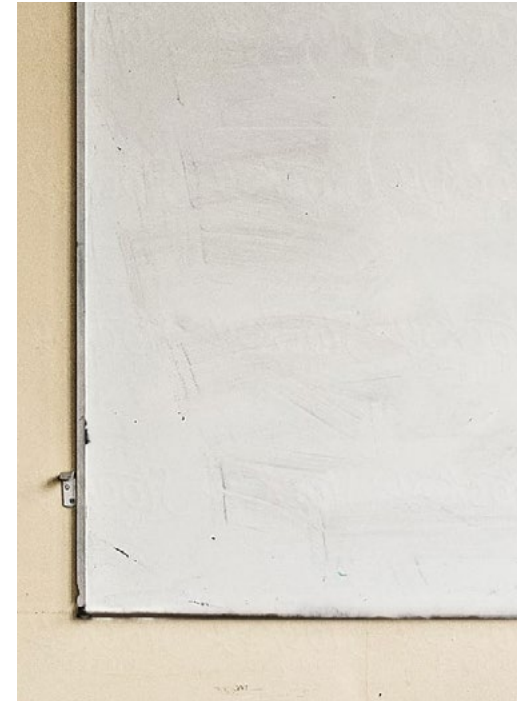
Poor board construction



Surface damage from cleaning chemicals



Painted steel surfaces absorb chemical markers - causing ghosting



Not engineered to withstand physical abuse

# 25 YEAR VITREX WRITING BOARD SURFACE WARRANTY



SCRATCH RESISTANT



STAIN RESISTANT



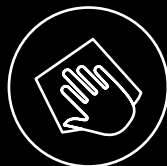
GRAFFITI RESISTANT



MAGNETIC



CHEMICAL RESISTANT



EASY TO CLEAN



# ENGINEERED FOR TOUGHNESS

We are the only writing board manufacturer in South Africa using Vitreous Enamel Surfaces, which gives us our unique product performance characteristics.

We are compliant with the SABS Standard CKS 36/2004 Edition 4 and suitable for Class 1 : Heavy duty applications.

We are the only heavy duty board manufacturer using industrial strength components to ensure product longevity.





# MADE TO SPECIFICATION

Choose from a variety of options including lines, squares, colors, and various surface finishes including chalk and whiteboard.

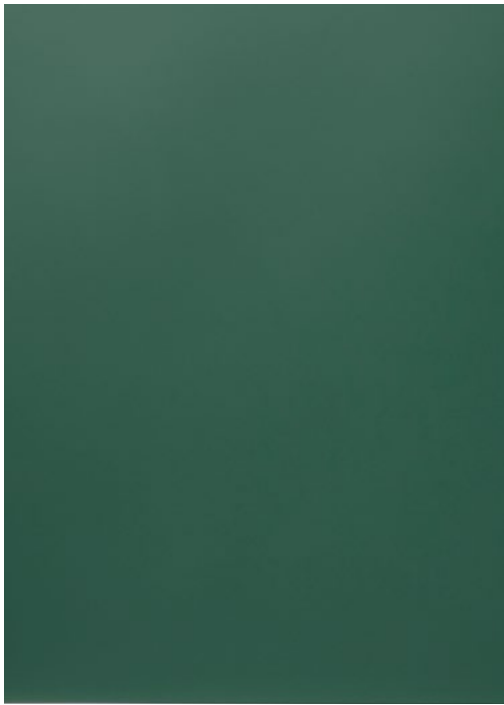
Enjoy the convenience of projectable surfaces.

Select from a range of solutions, from simple boards to complex hinged and swing systems.

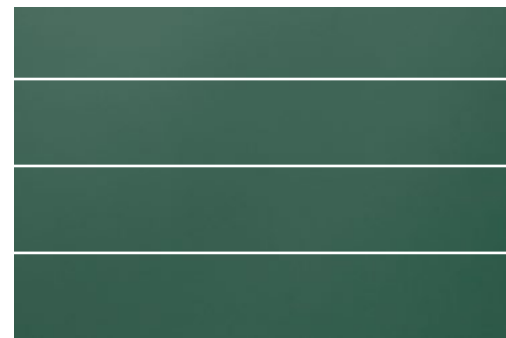
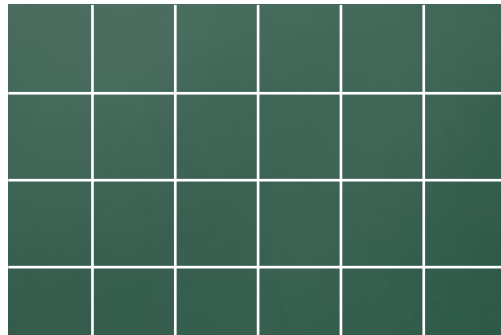
Options include timber core boards with aluminum trims, or full metal construction with zero timber content.



# SURFACE OPTIONS



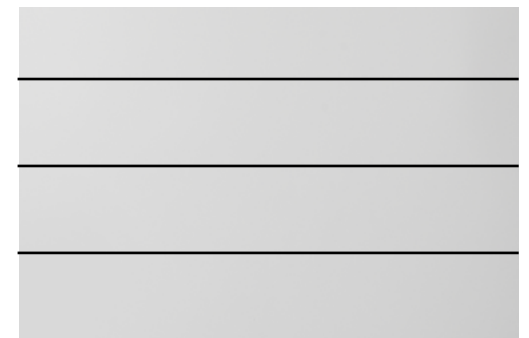
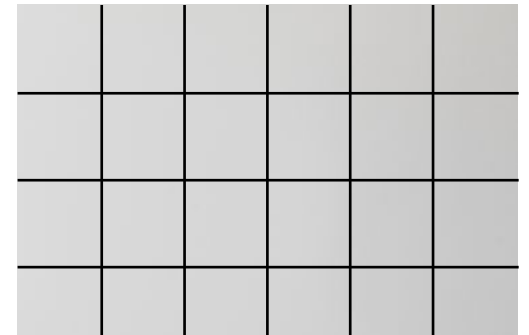
Chalkboard



Grid Lines or Lines



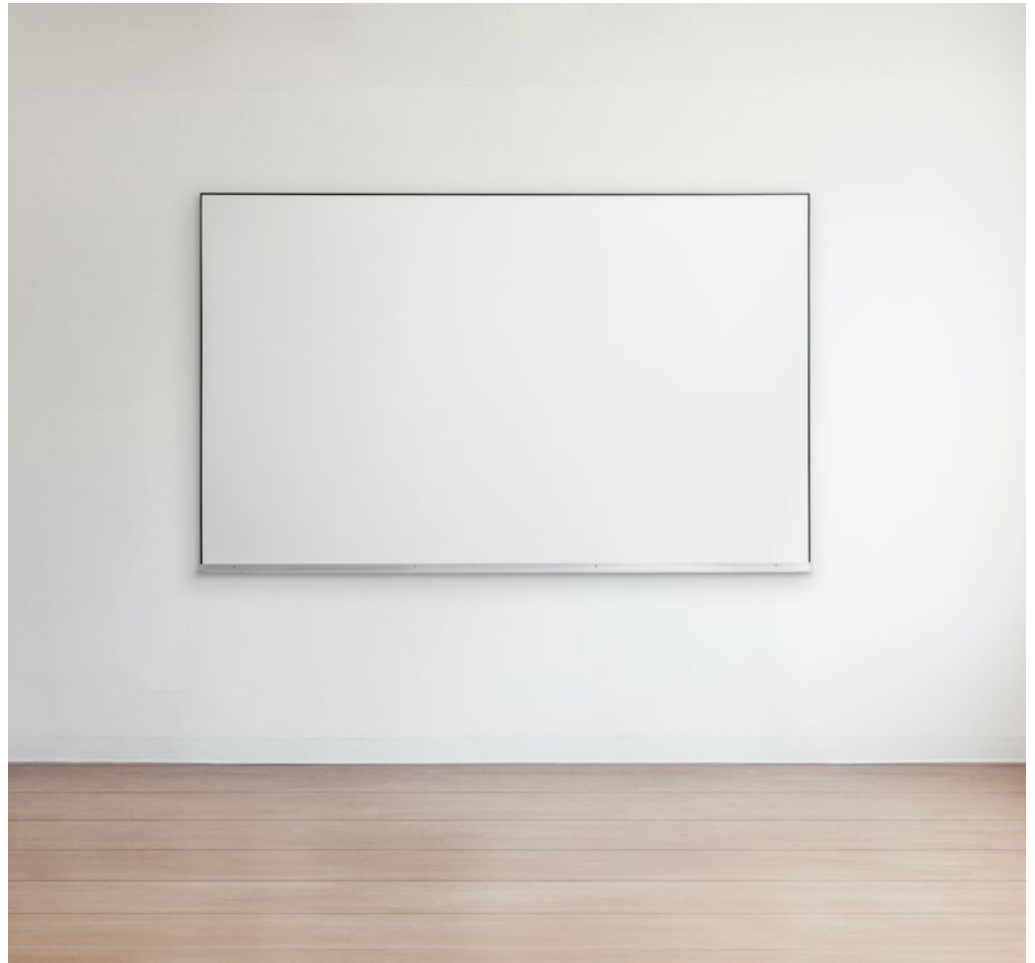
Whiteboard



Grid Lines or Lines

# SYSTEM 1000

An all metal construction design to withstand the toughest of school environments in Africa. Used by public school institutions as these boards are resistant to water damage and insect infestation. They also have minimal Aluminium content, which reduces the incentive for theft.





# SYSTEM 1000 HINGE BOARDS



2BMIU3 What can you hear?  
Period! On Danny's Way to School

Listen!  
What can you hear?

I can hear...

It goes '...'

Here it comes!



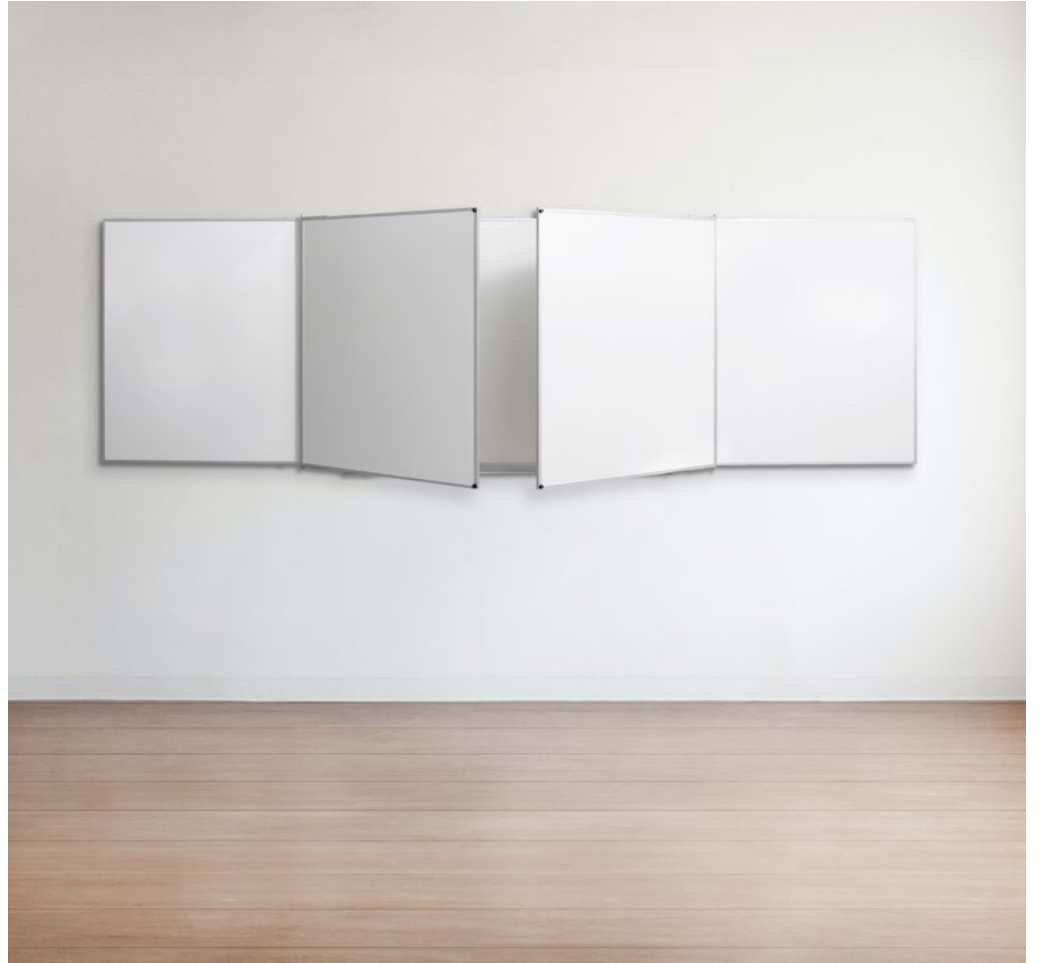
# SYSTEM 2000

We use a traditional timber core in our board construction, however we use solid MDF instead of soft board. This makes our product more impact resistant and durable than competitors. All boards are supplied with an integrated pen rail. All boards have a “balancing backer”, which seals the back of the timber panel, preventing warping of the timber in high humidity environments.





# SYSTEM 2000 HINGE BOARDS



parallel lines  
perpendicular lines  
interior angle

## Lesson 1

1.  $15 + \underline{\quad} = 35$
2.  $9 \times 7 = \underline{\quad}$
3.  $21 - 14 = \underline{\quad}$
4.  $100 \div 5 = \underline{\quad}$

$$\begin{array}{r} 10 \\ + 5 \\ \hline 15 \end{array}$$
$$\begin{array}{r} 11 \\ + 7 \\ \hline 18 \end{array}$$
$$\begin{array}{r} 12 \\ + 6 \\ \hline 18 \end{array}$$
$$\begin{array}{r} 22 \\ + 11 \\ \hline \end{array}$$

Homework  
Due tomorrow!  
Chapter 2 a 1-10

1 one	11 eleven	10 ten
2 two	12 twelve	20 twenty
3 three	13 thirteen	30 thirty
4 four	14 fourteen	40 forty
5 five	15 fifteen	50 fifty
6 six	16 sixteen	60 sixty
7 seven	17 seventeen	70 seventy
8 eight	18 eighteen	80 eighty
9 nine	19 nineteen	90 ninety

100 hundred 1000 thousand



GET IN TOUCH FOR A LASTING SOLUTION TO YOUR WRITING SURFACE NEEDS.

Visit our website at [www.vitrex.co.za](http://www.vitrex.co.za), email us at [vitrex@vitrex.co.za](mailto:vitrex@vitrex.co.za) or phone us at +27 10 140 4740

